GEORGE C. MARSHALL SPACE FLIGHT CENTER

PICTORIAL PROGRESS REPORT
OF
THE SATURN LAUNCH VEHICLE DEVELOPMENT

Volume IV

LAYOUT SECTION
VEHICLE ENGINEERING BRANCH
PROPULSION AND VEHICLE ENGINEERING DIVISION

PICTORIAL PROGRESS REPORT
OF
THE SATURN LAUNCH VEHICLE DEVELOPMENT

Volume IV

This fourth booklet of photographs has been assembled by the Layout Section, Vehicle Engineering Branch, Propulsion and Vehicle Engineering Division with the cooperation of many personnel in other Divisions of the George C. Marshall Space Flight Center. It is presented as a Pictorial Progress Report of the facilities build-up and the development of the Saturn Launch Vehicle System during the calendar year 1961. It is anticipated that additional volumes will be issued as the program progresses through the research and development phase.

February 1962

LAUNCH VEHICLE TRANSPORTATION

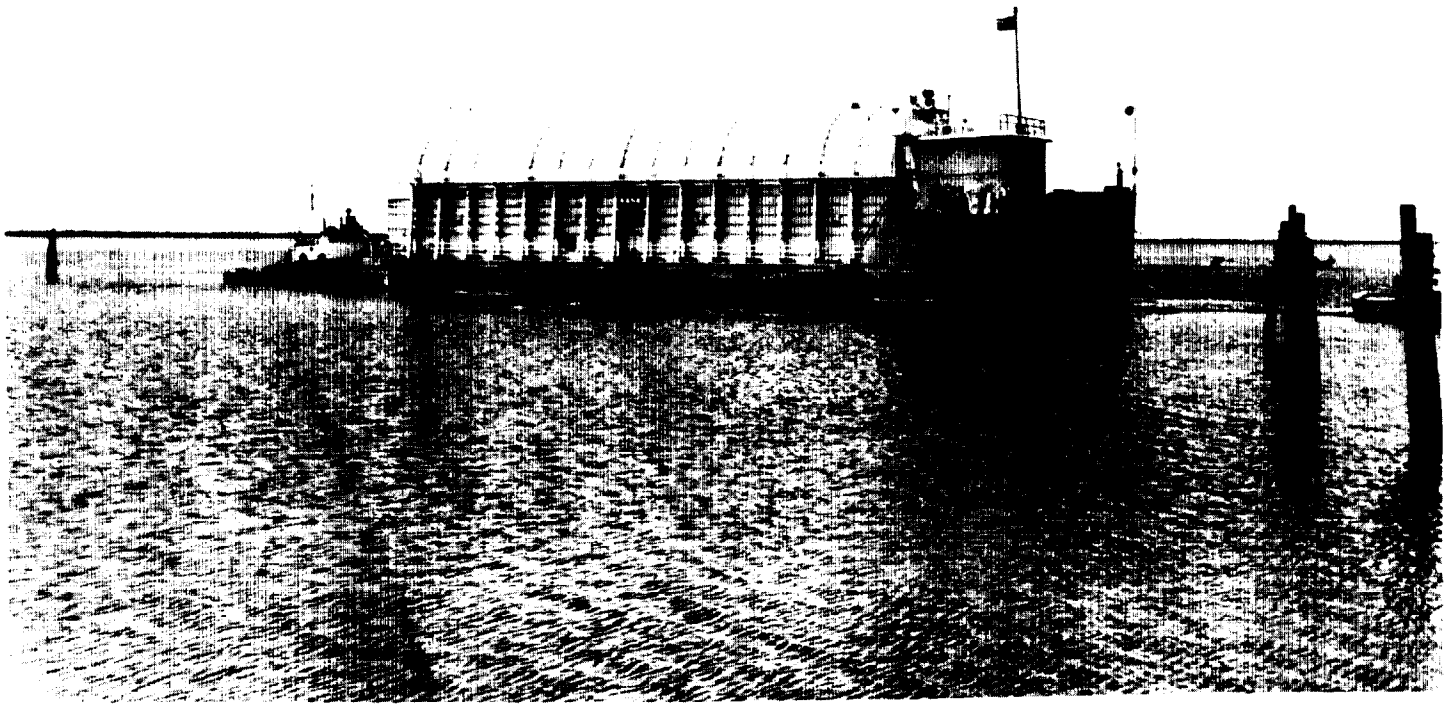

FIGURE 1. THE PALAEMON USED FOR LAUNCH VEHICLE TRANSPORTATION FROM MSFC TO WHEELER DAM

FIGURE 2. S-I STAGE BEING UNLOADED FOR TRANSPORTATION AROUND WHEELER DAM

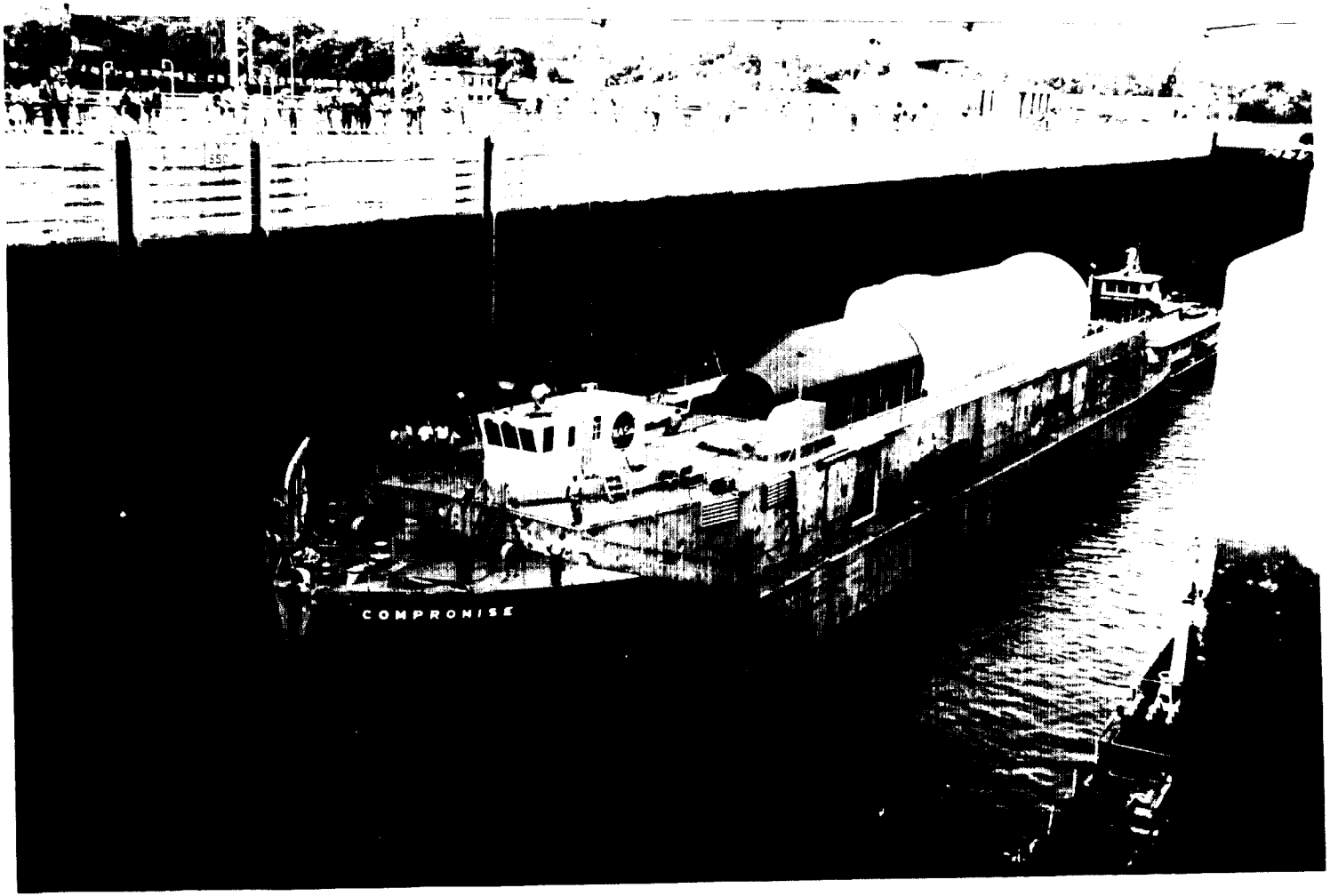

FIGURE 3. THE COMPROMISE, DESIGNED TO TRANSPORT
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THE VIEW SHOWN IS AT THE WILSON DAM LOCK

SA-1 PREPARATION AND LAUNCHING

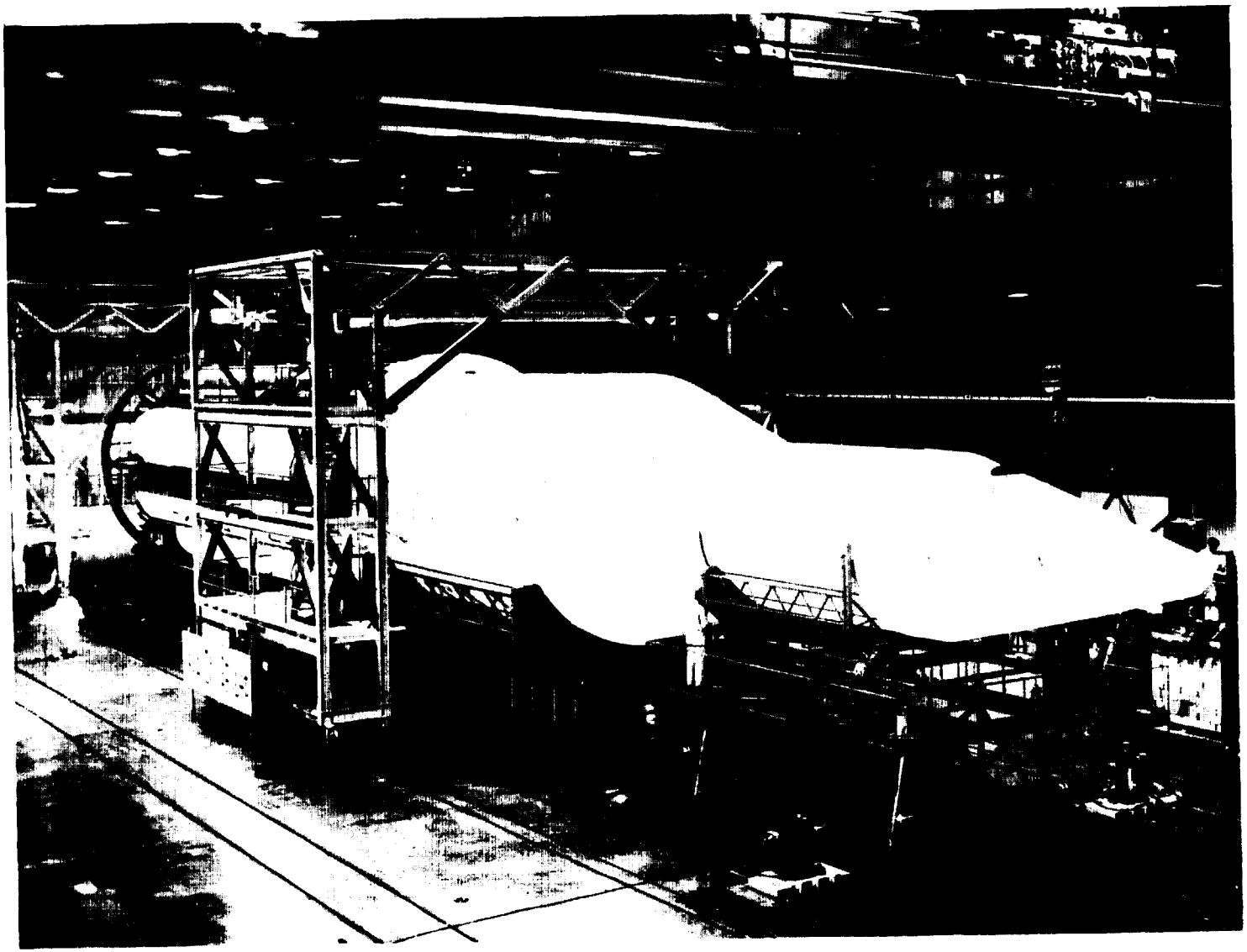

FIGURE 4. COMPLETED SA-1 VEHICLE

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FIGURE 6. DUMMY S-IV STAGE BEING RAISED INTO POSITION

FIGURE 7. ERECTED VEHICLE WITH SERVICE STRUCTURE IN PLACE

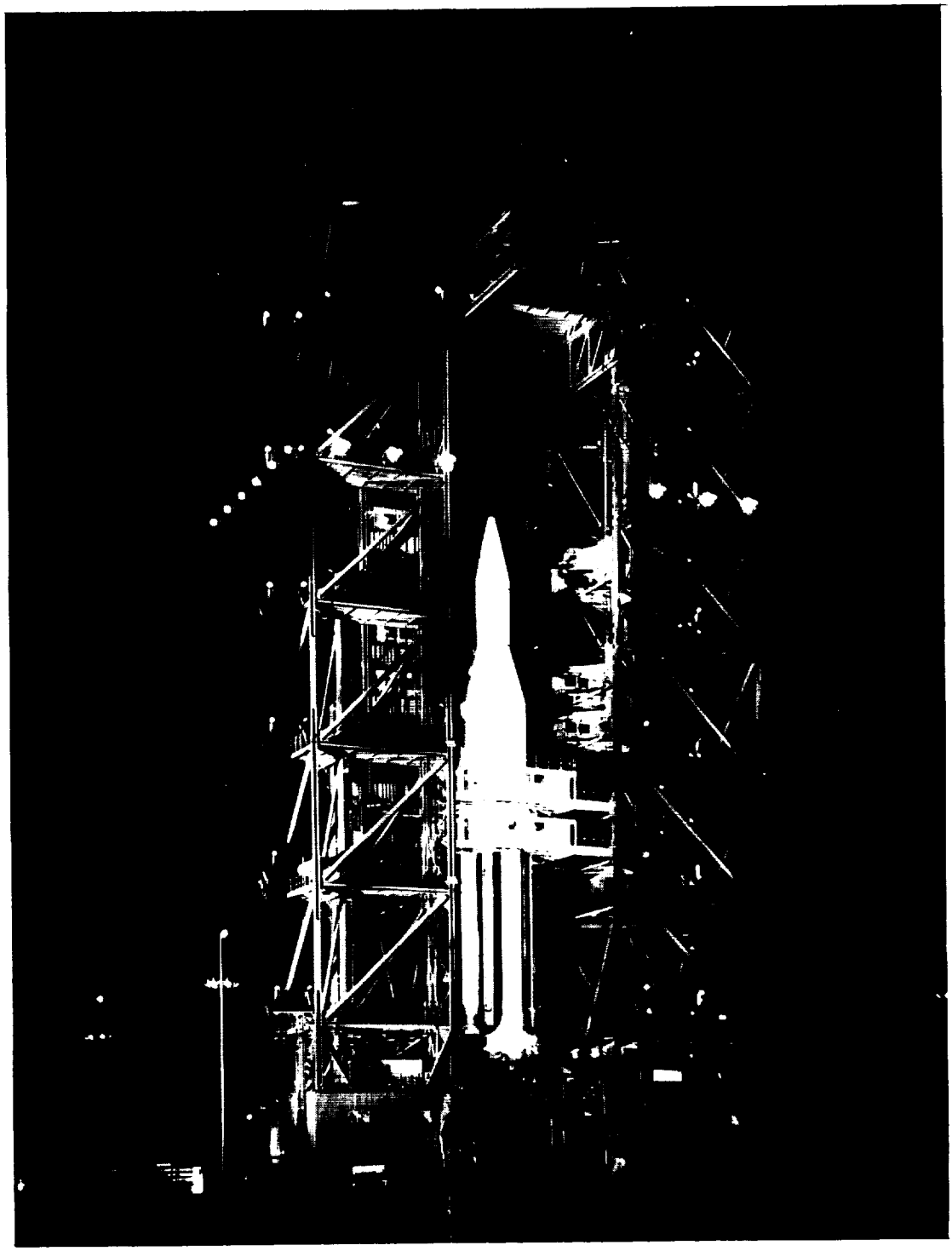


FIGURE 8. NIGHT VIEW JUST PRIOR TO LAUNCH

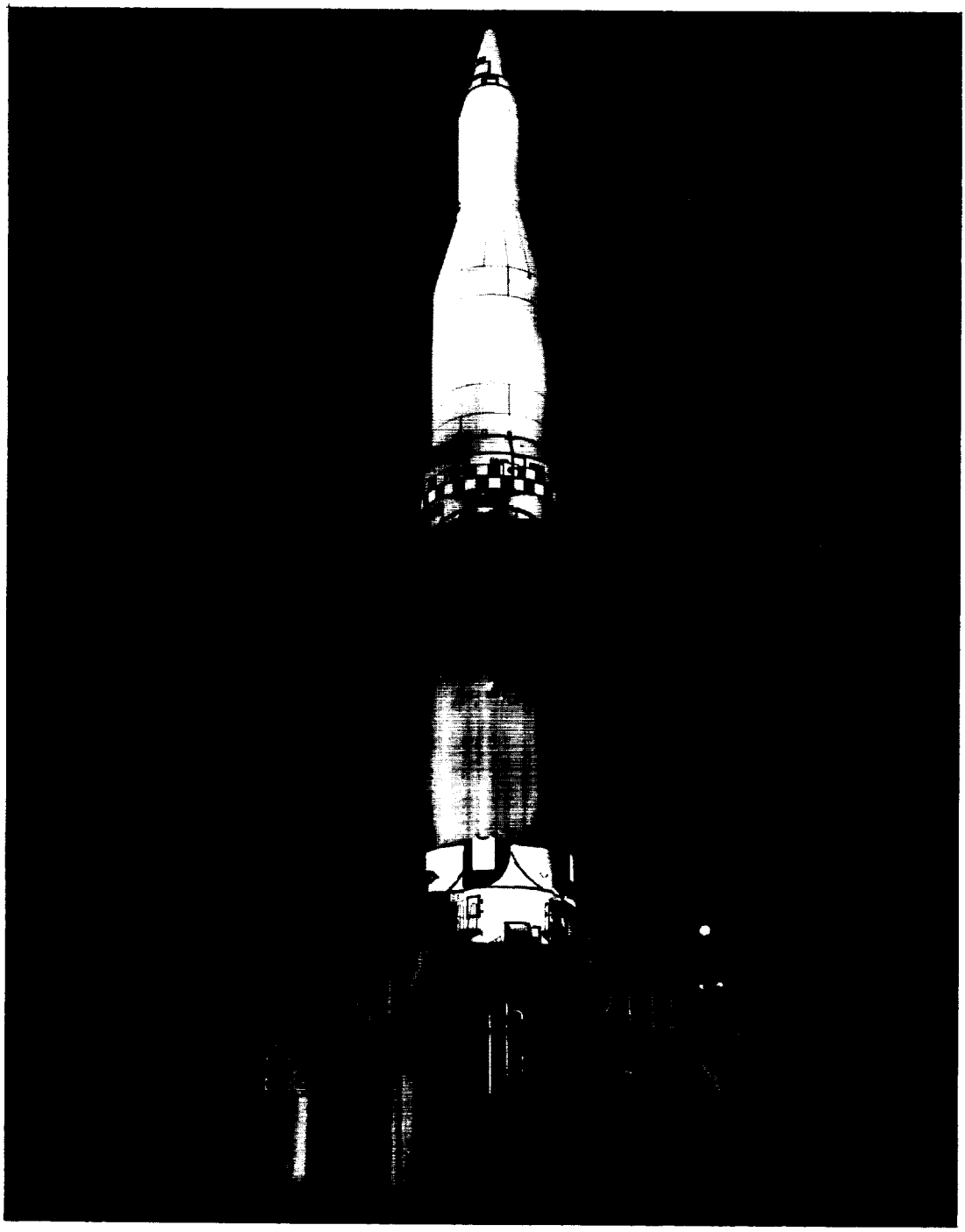


FIGURE 9. SERVICE TOWER WITHDRAWN FOR RF CHECKS. BOOSTER COVERED FOR RAIN PROTECTION

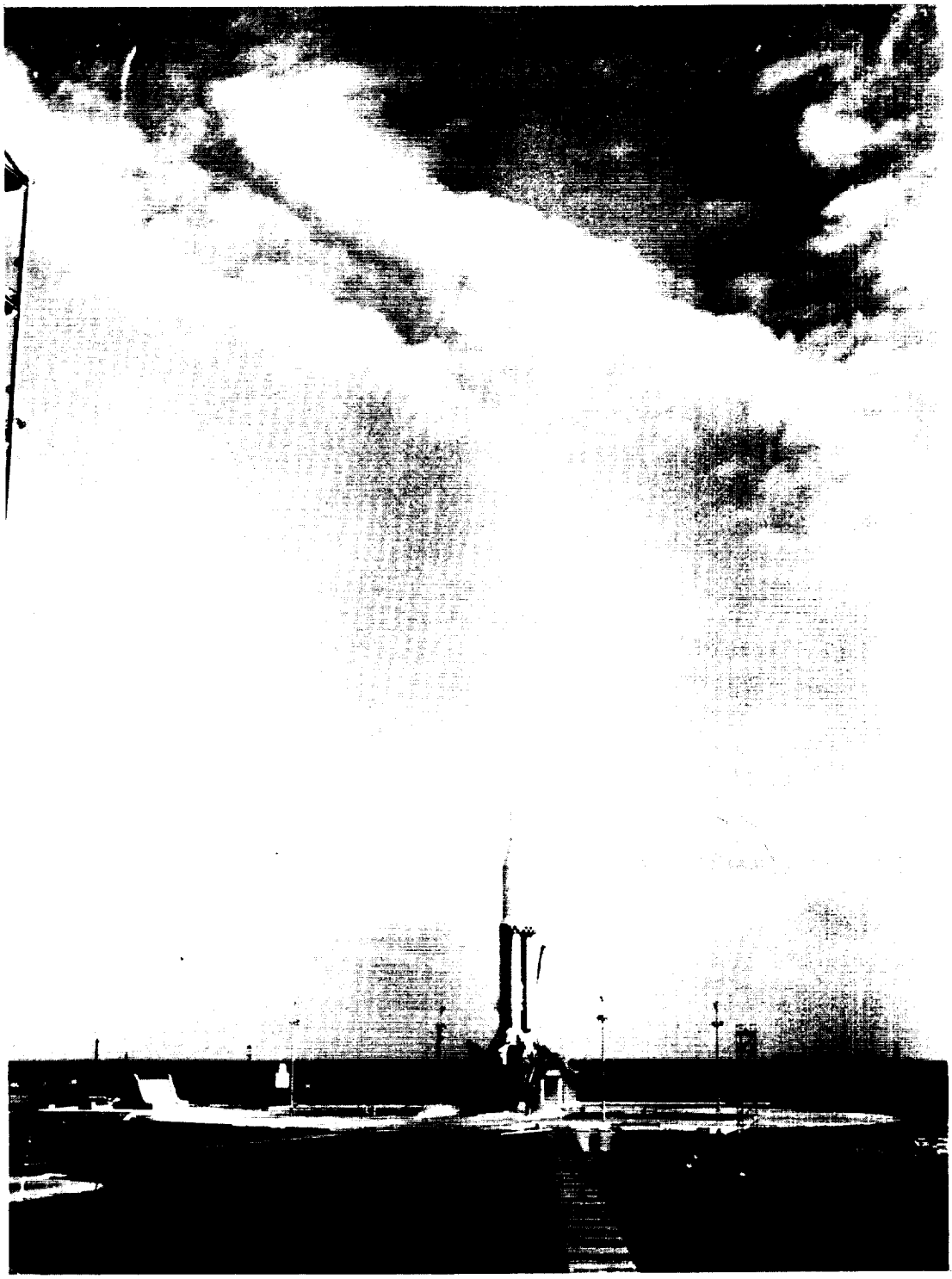


FIGURE 10. IGNITION

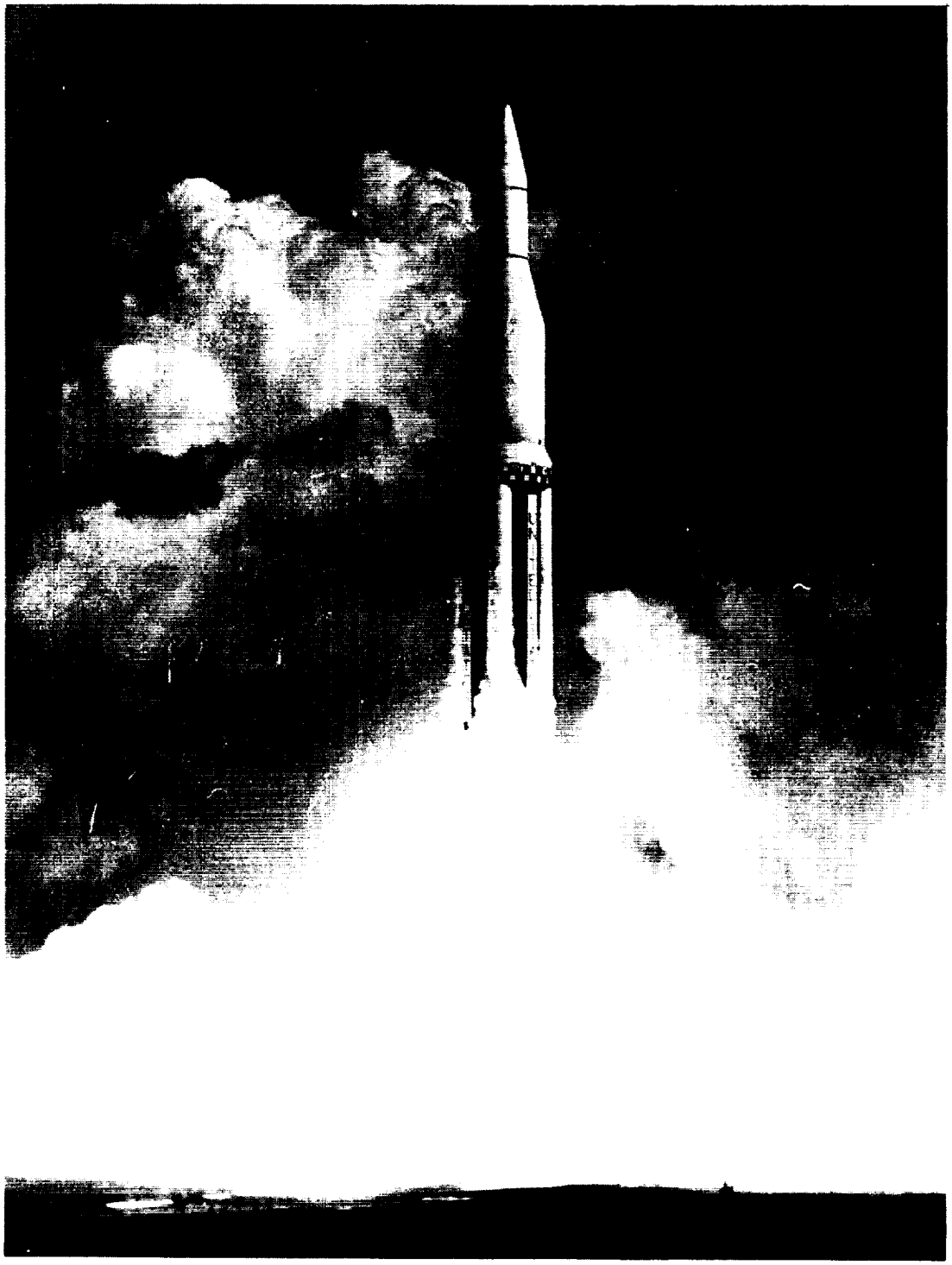
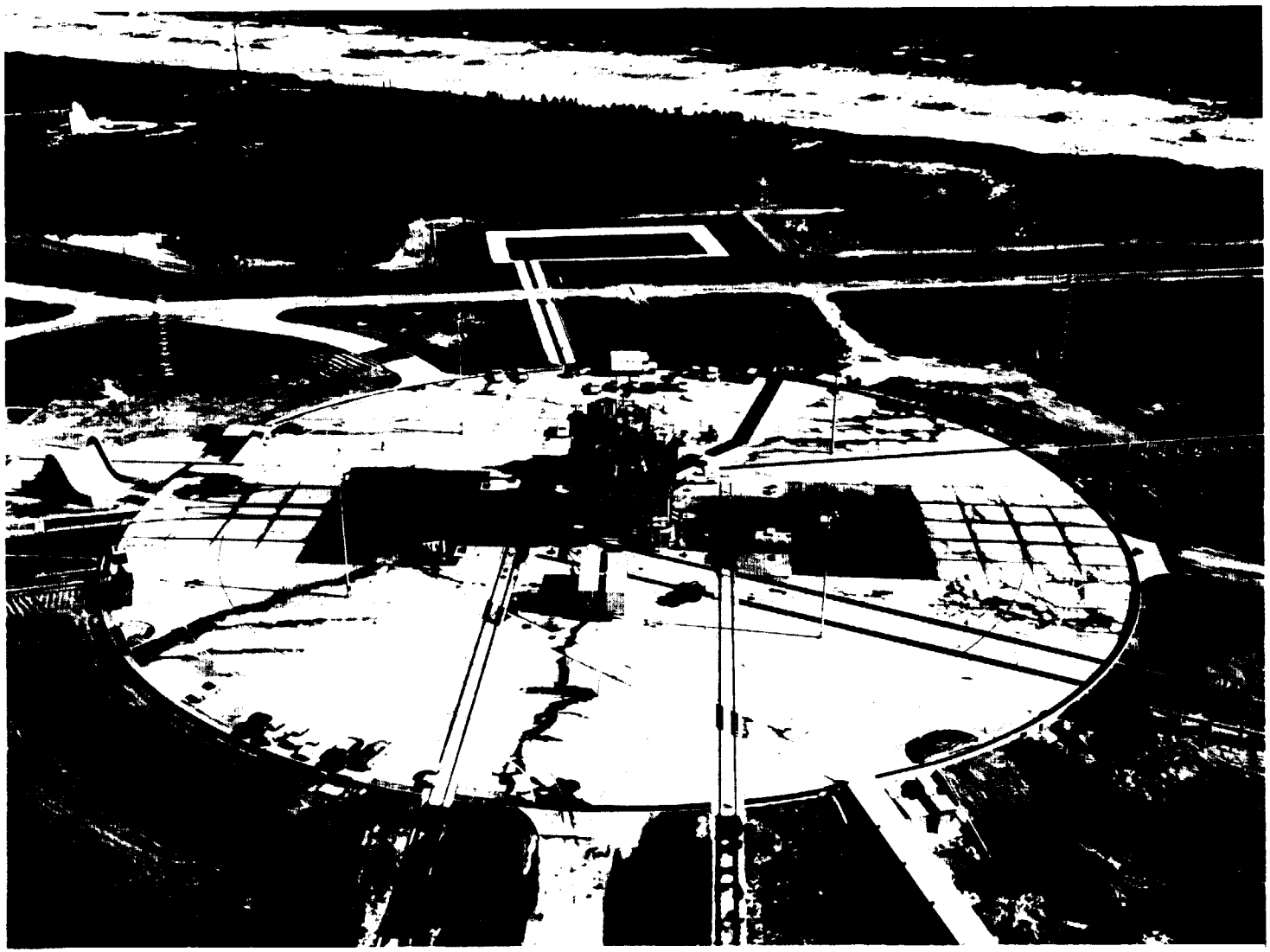


FIGURE 11. SUCCESS!

POST LAUNCH SCENES VLF 34



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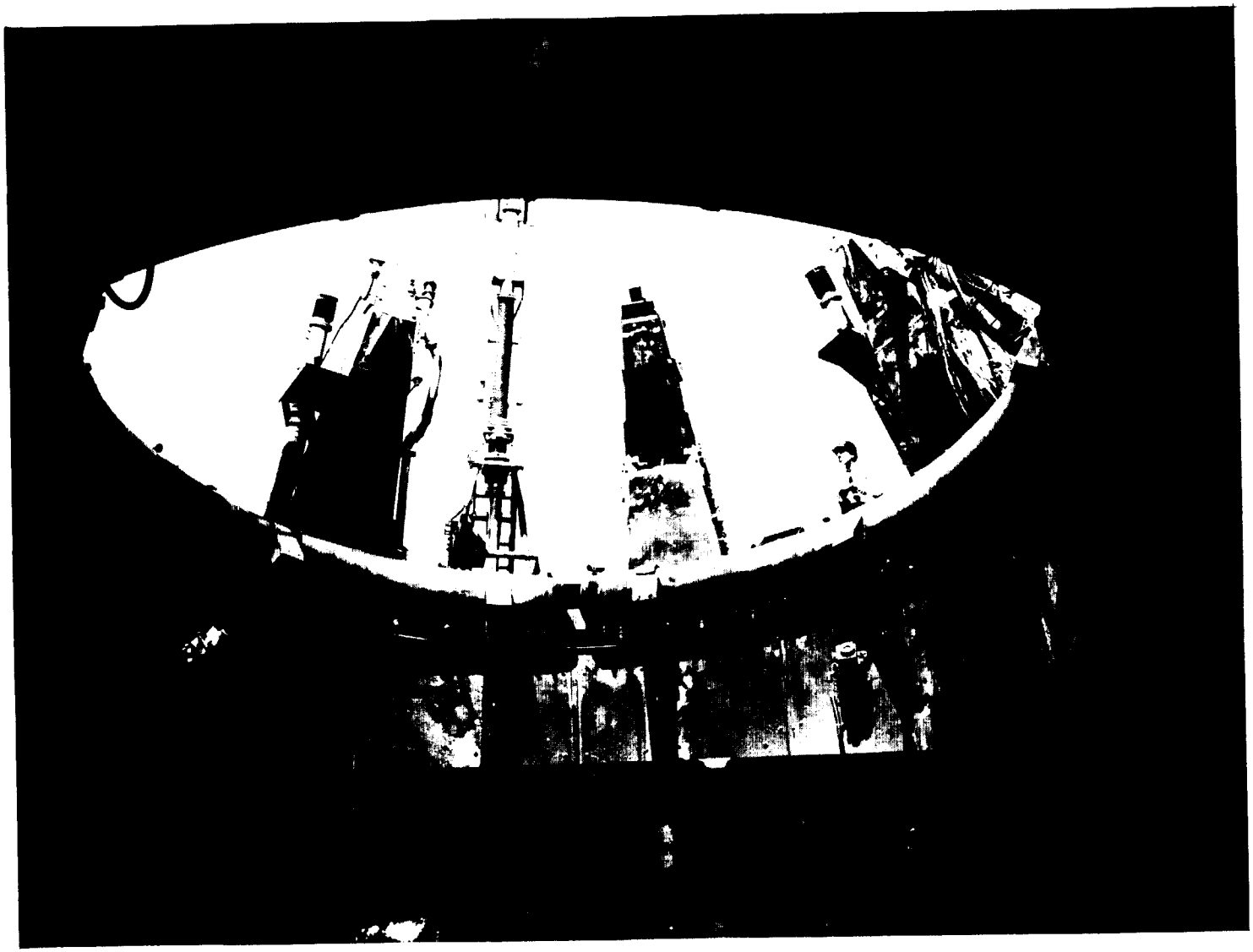

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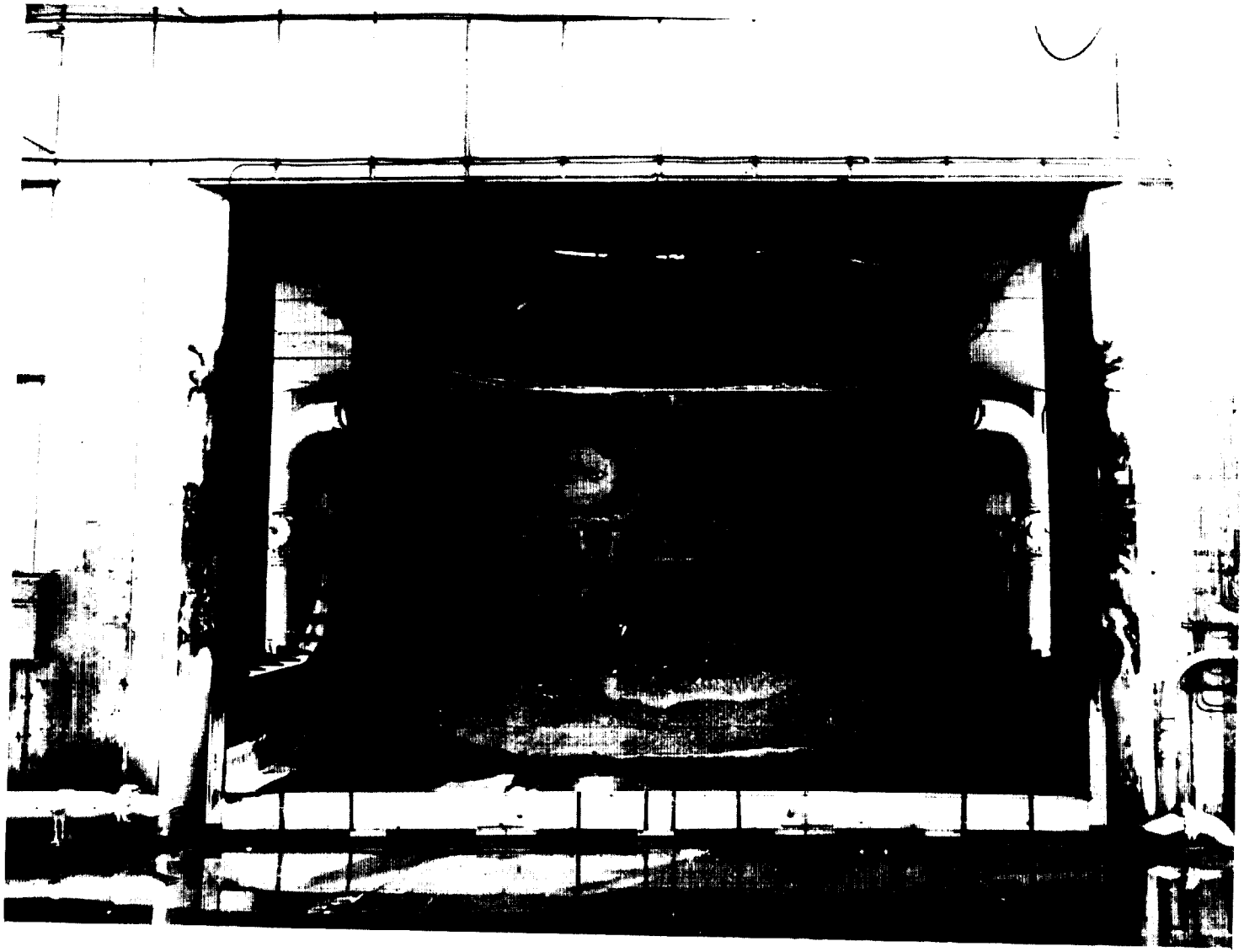

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FIGURE 16. VIEW SHOWING DAMAGED LONG CABLE MAST

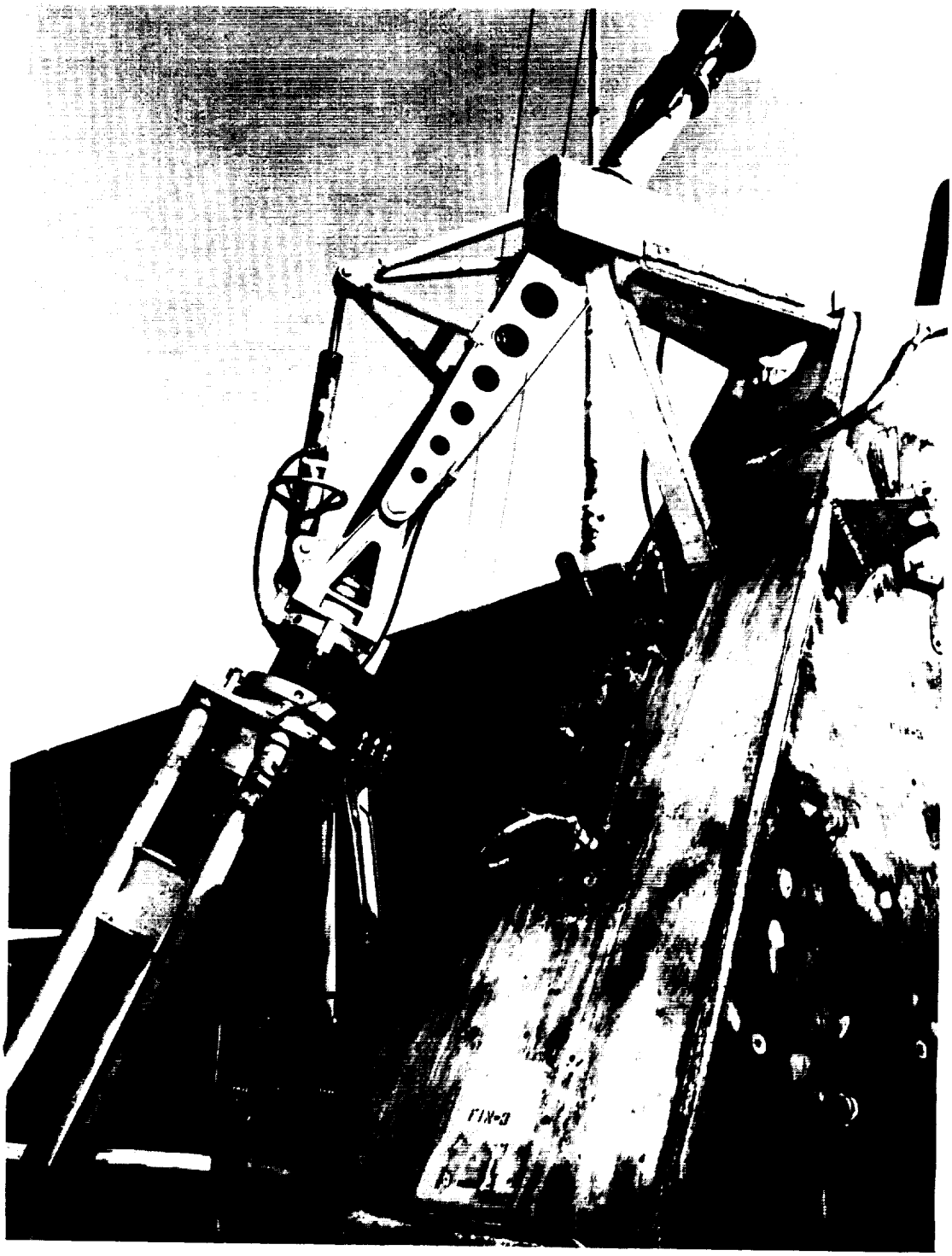


FIGURE 17. LOX FILL AND DRAIN MAST

VERTICAL LAUNCH FACILITY 37

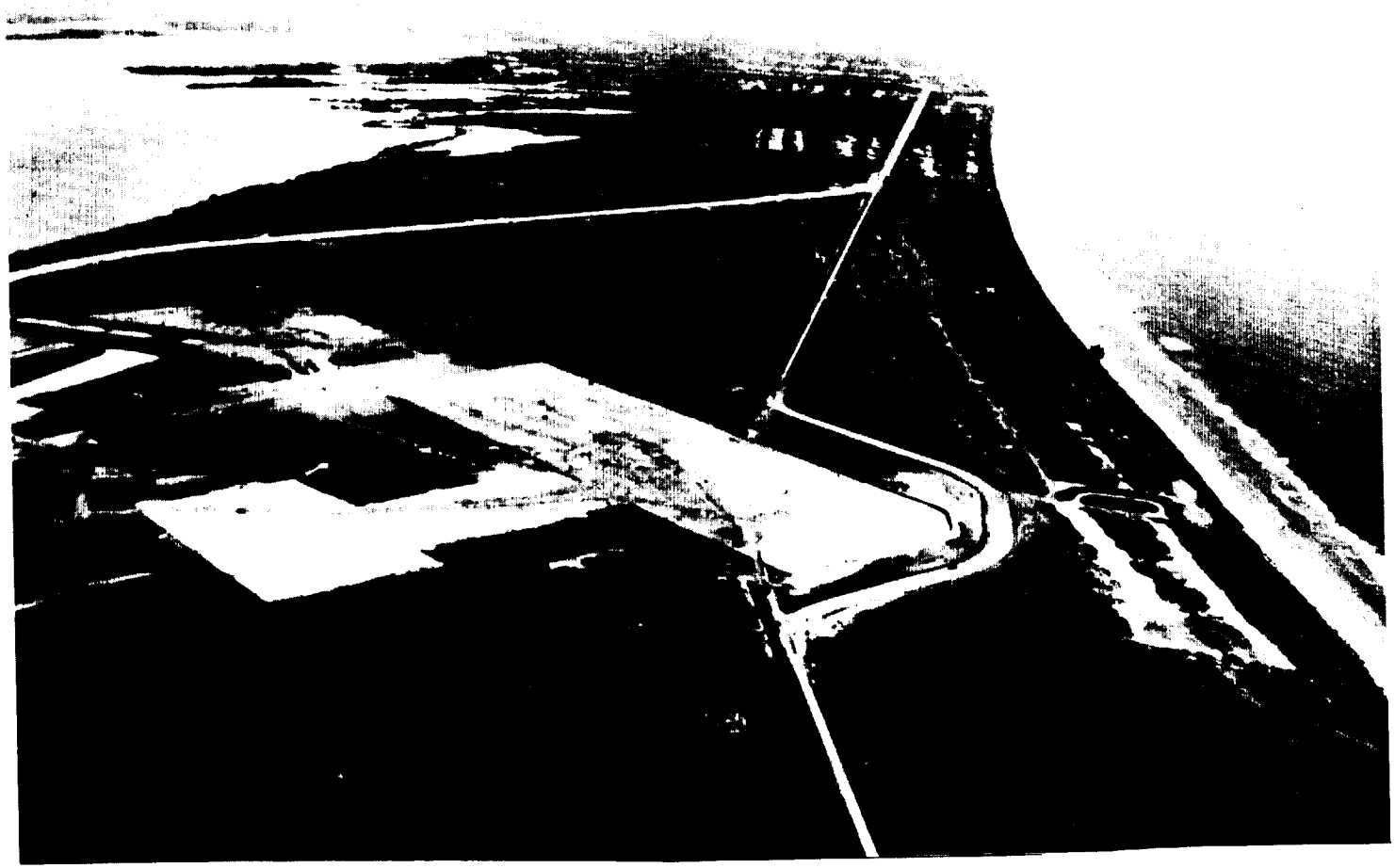


FIGURE 18. AERIAL VIEW OF THE VLF 37 COMPLEX

MODELS AND MOCK-UPS

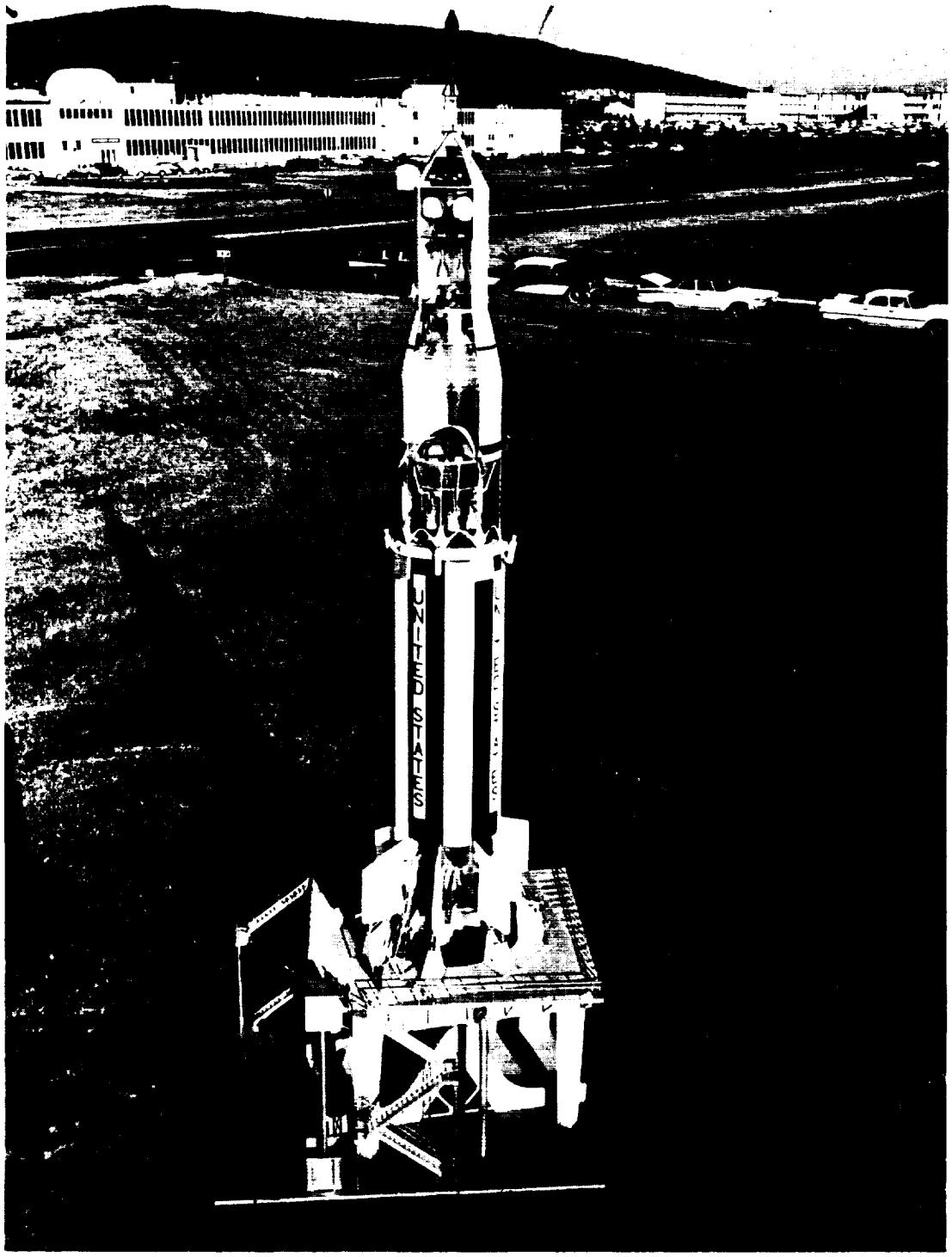
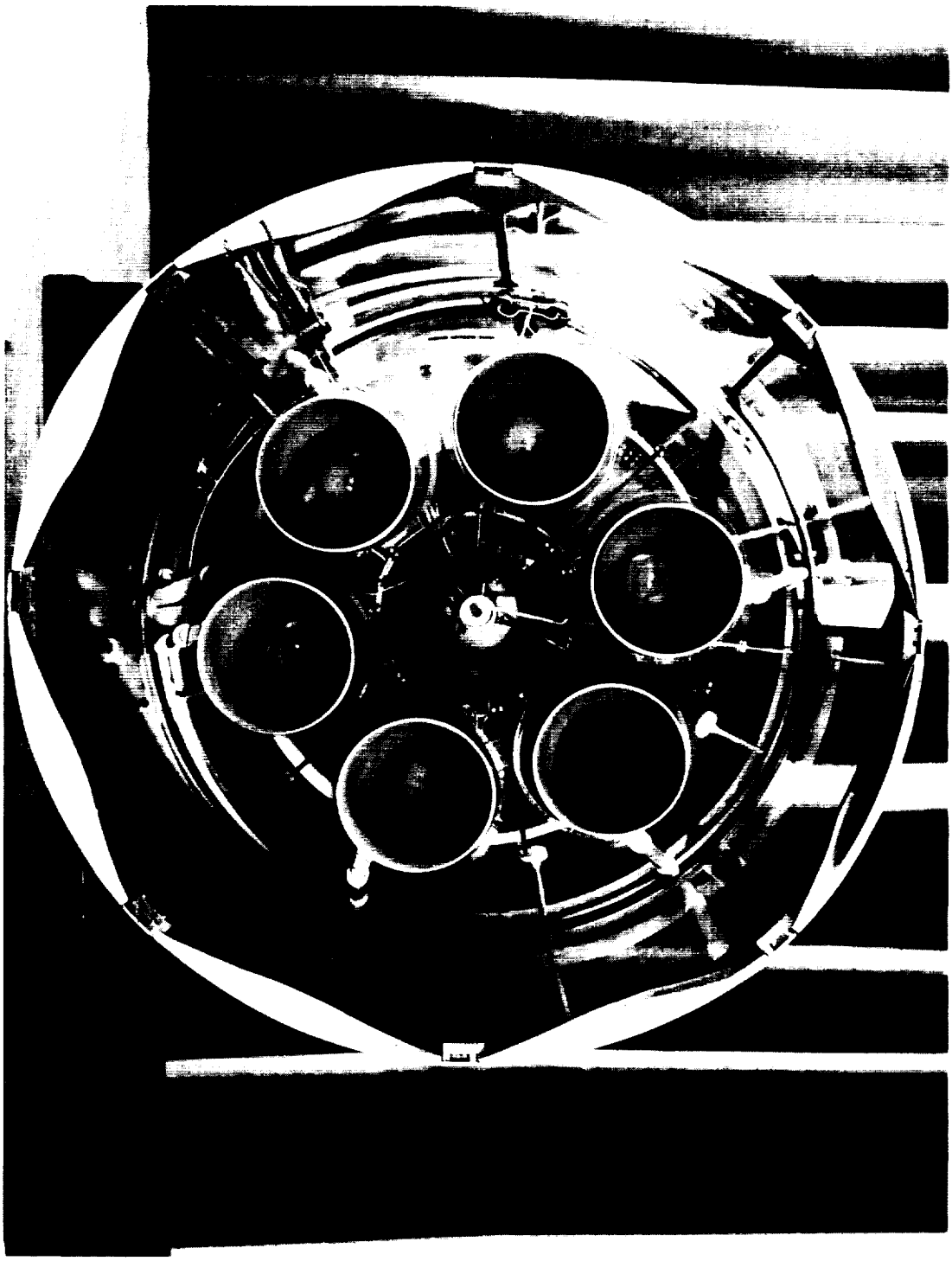


FIGURE 19. 1/10 SCALE C-1 VEHICLE WITH APOLLO CAPSULE



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1/10 SCALE S-IV STAGE MODEL

FIGURE 21. FULL SCALE SA-5 S-I STAGE
TAIL AREA MOCK-UP

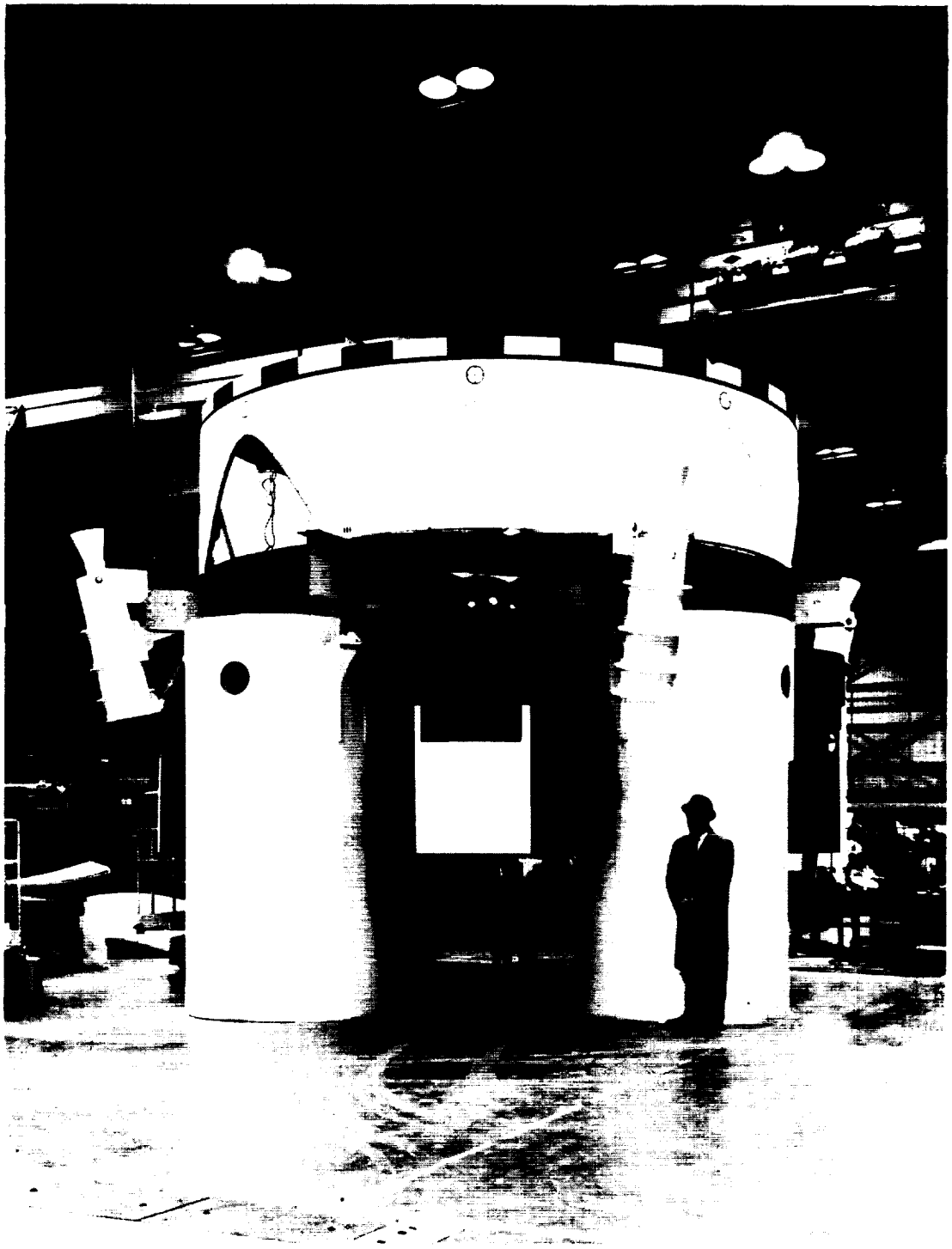

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FIGURE 23. DAC S-IV STAGE FORWARD MATING MOCK-UP WITH INSTRUMENT COMPARTMENT MOCK-UP

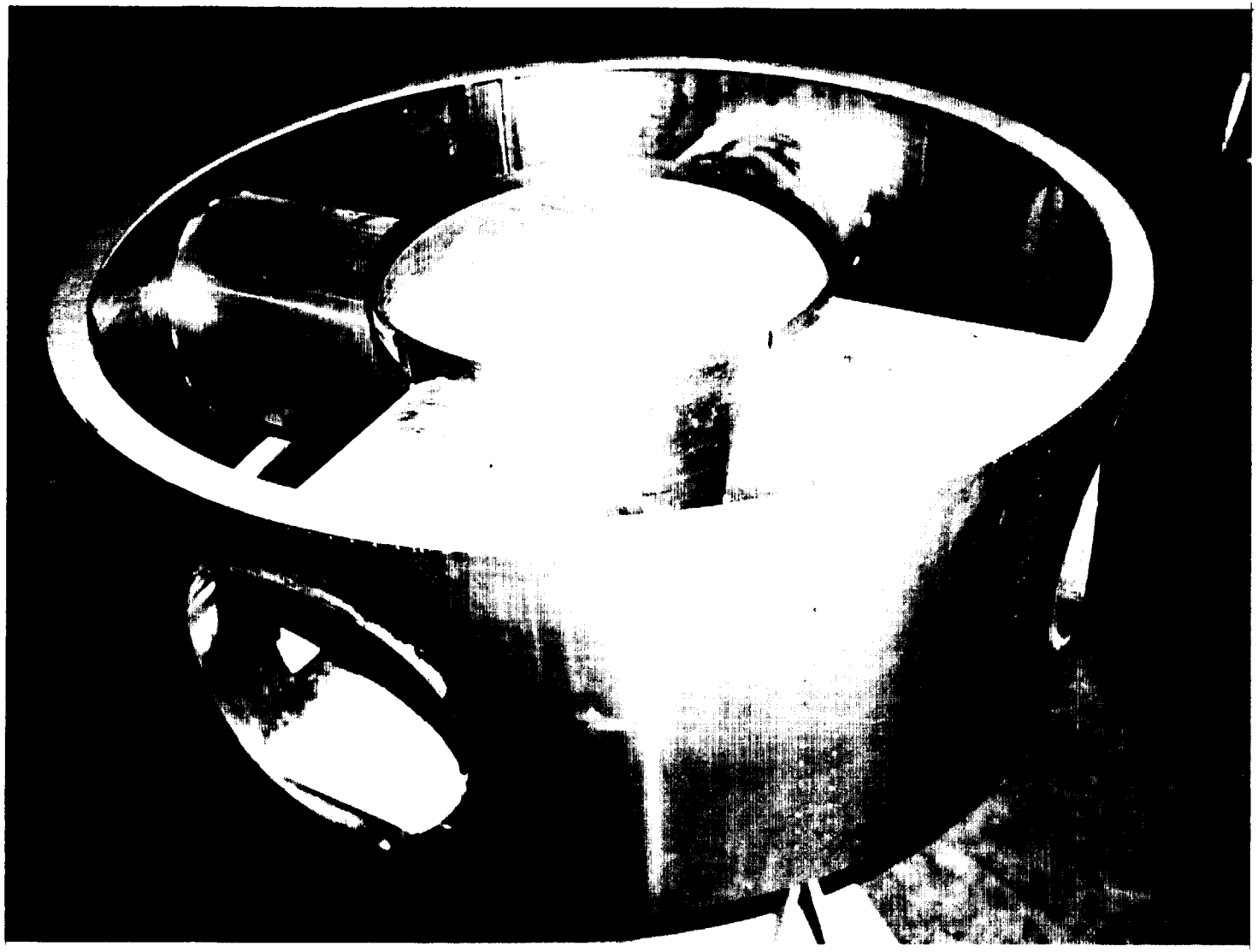

FIGURE 24. INSTRUMENT COMPARTMENT MOCK-UP

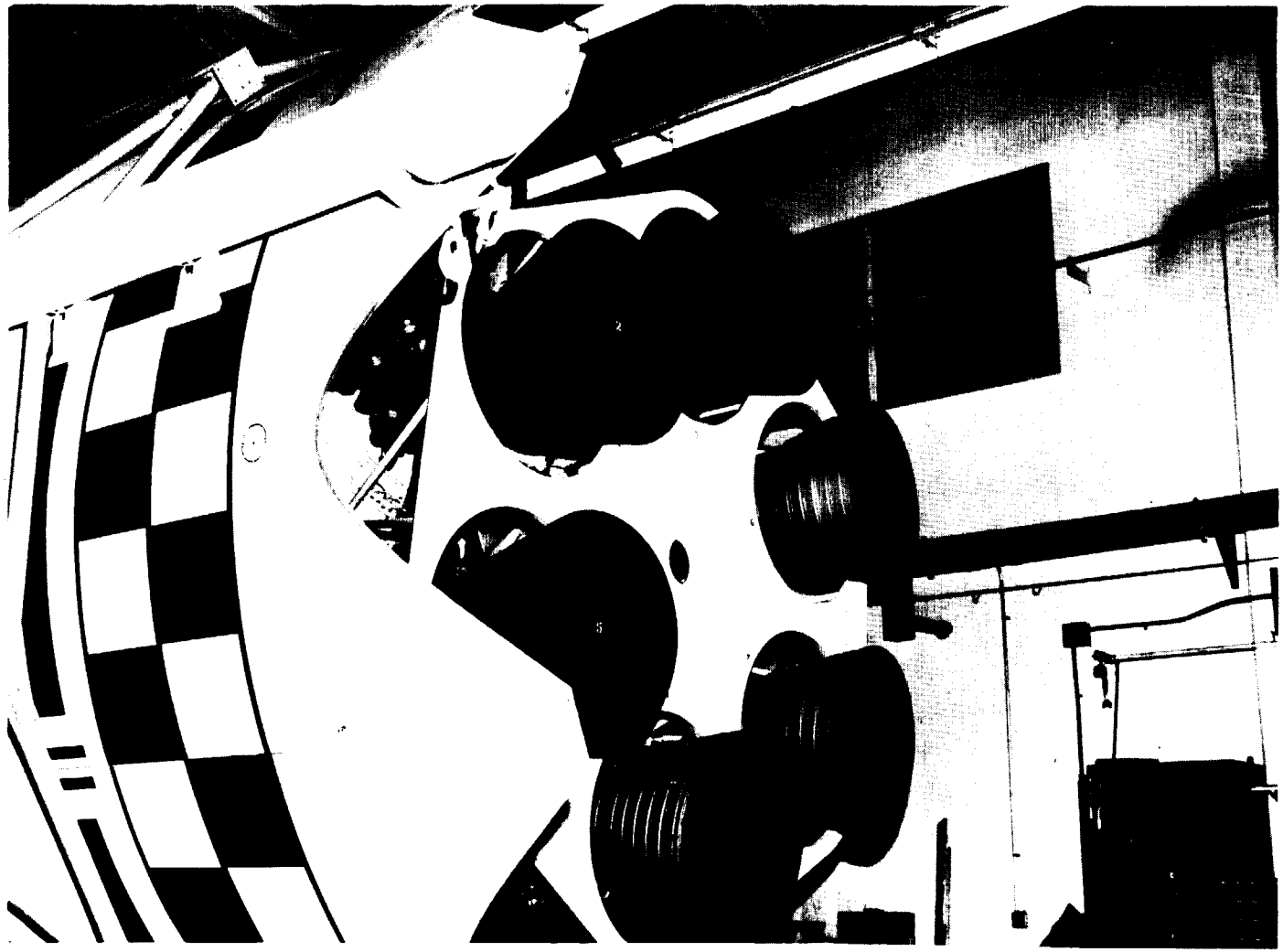

FIGURE 26. DAC S-IV FULL SCALE MOCK-UP

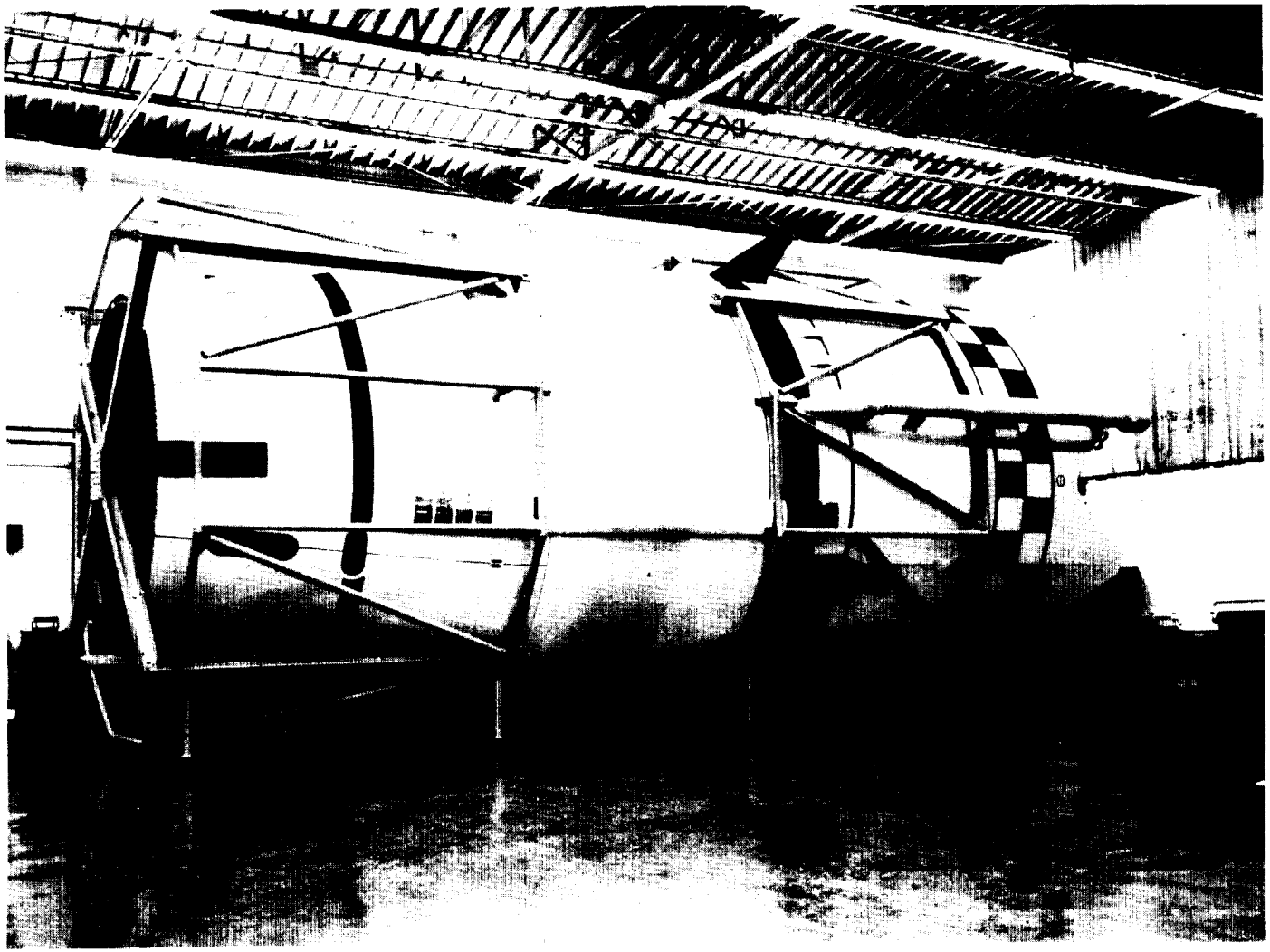

FIGURE 25. DAC S-IV FULL SCALE MOCK-UP

LABORATORY FACILITIES OF THE MARSHALL SPACE FLIGHT CENTER

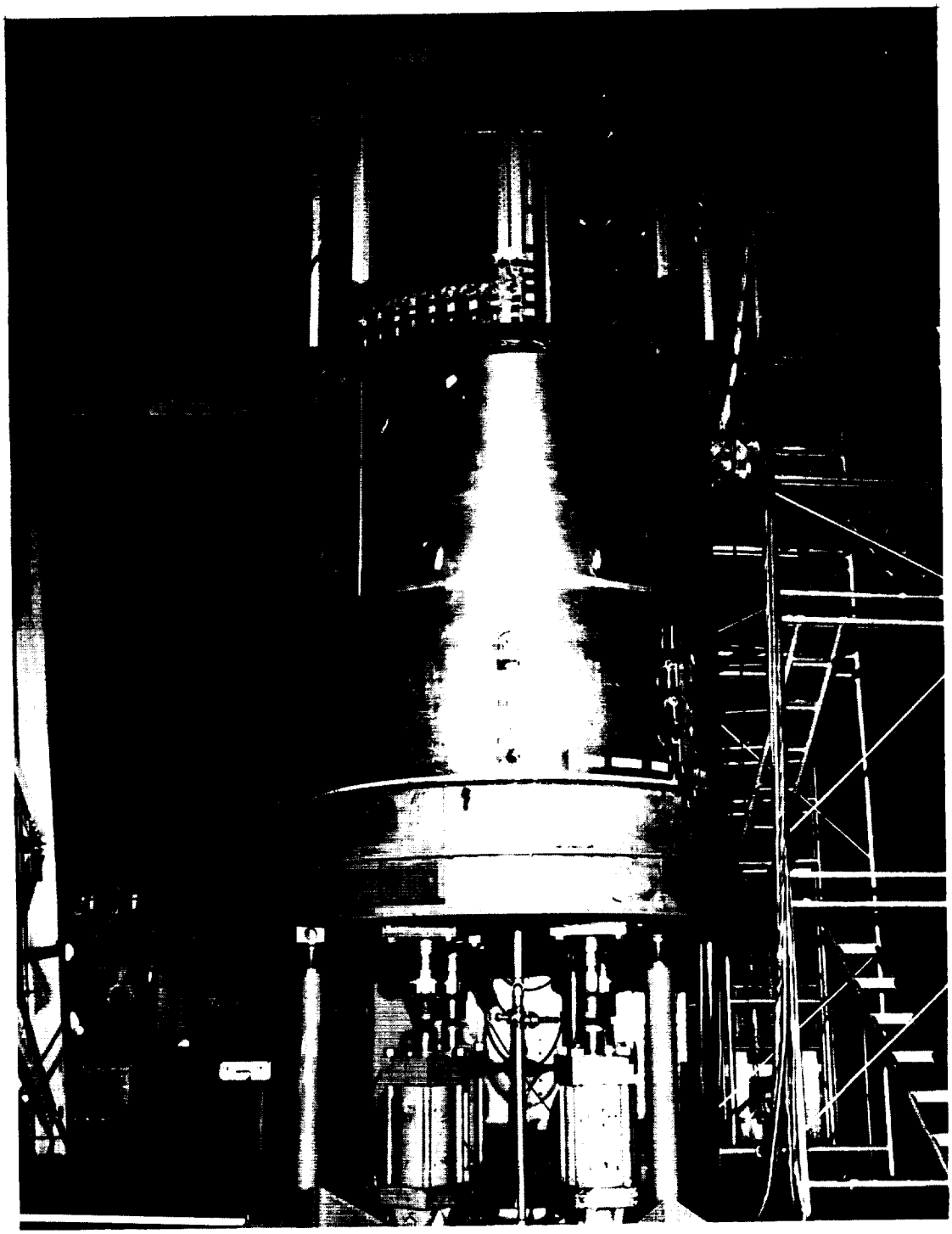

FIGURE 27. LOAD TEST ON 105" DIAMETER LOX TANK

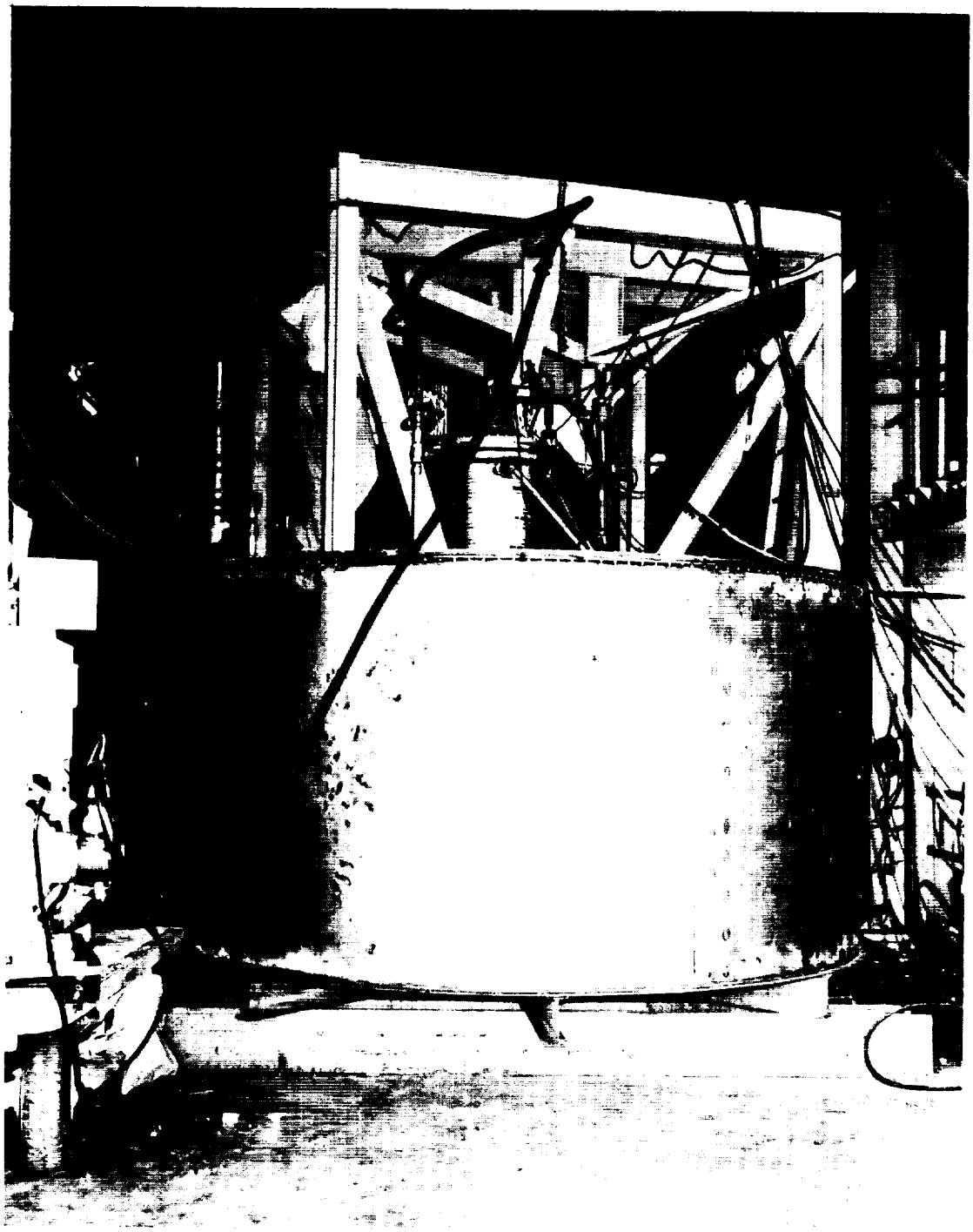

FIGURE 28. TEST SET-UP TO DETERMINE GIMBAL LOADS
PRODUCED BY PRESSURE AND VACUUM
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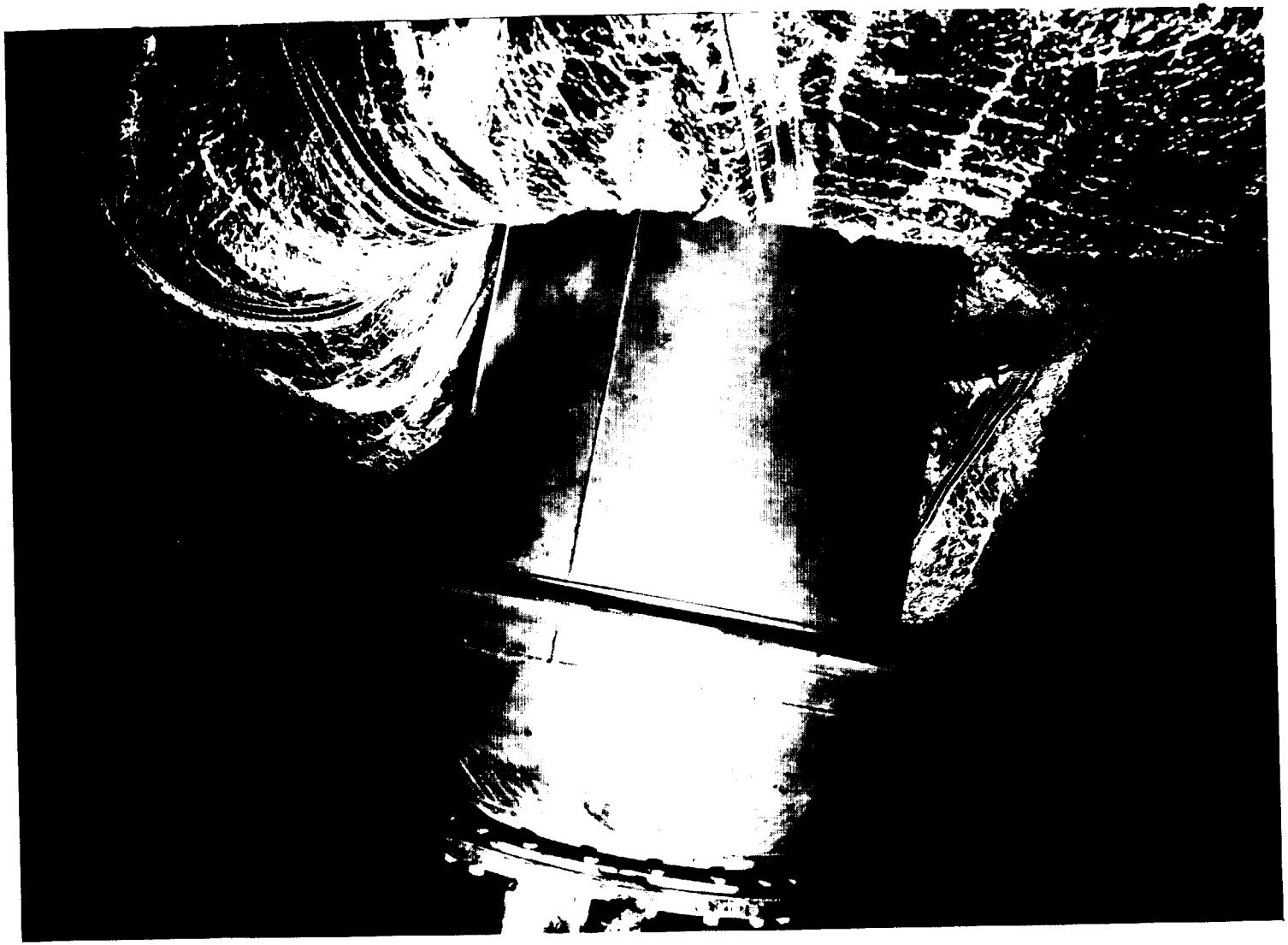


FIGURE 29. VIEW SHOWING AFT SURFACE OF REFLECTIVE TAPE COVERED CURTAIN USED IS TEST SET-UP OF FIG. 28

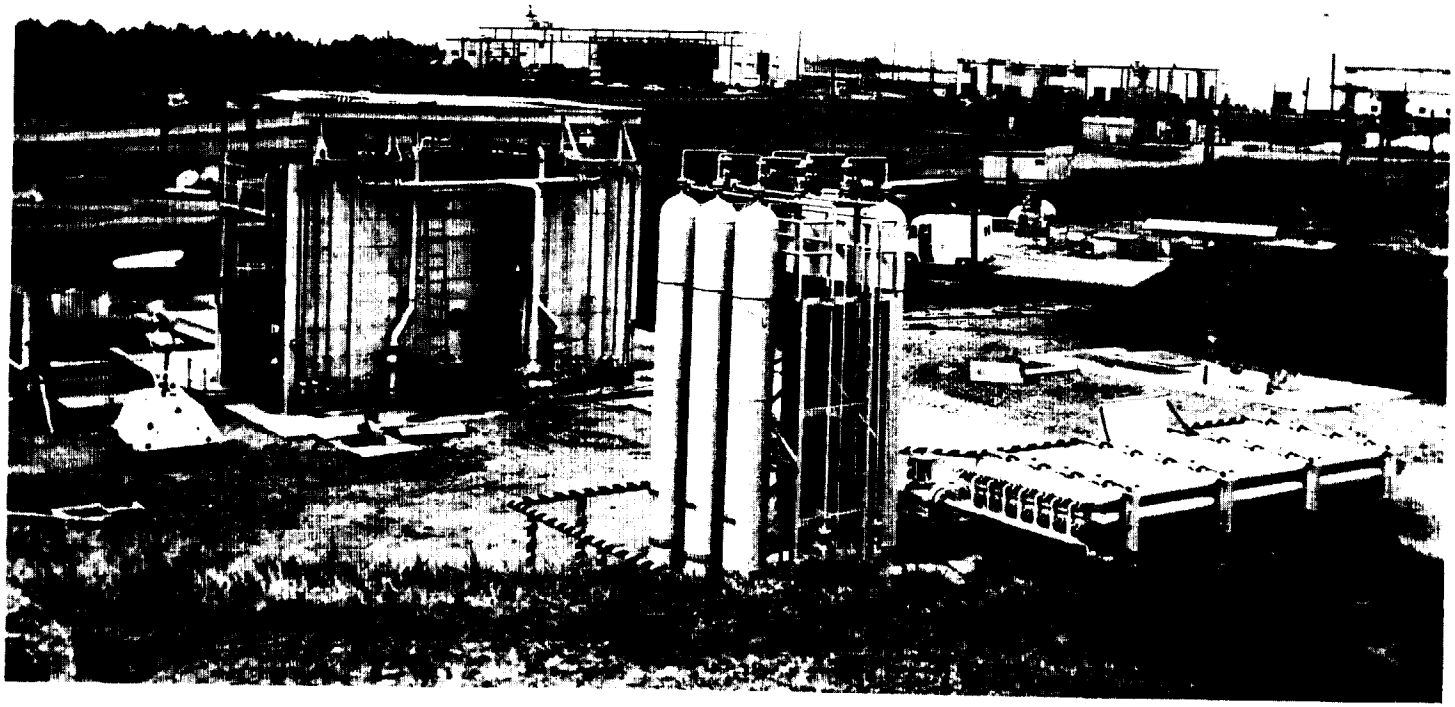


FIGURE 30. HYDROGEN TEST AREA

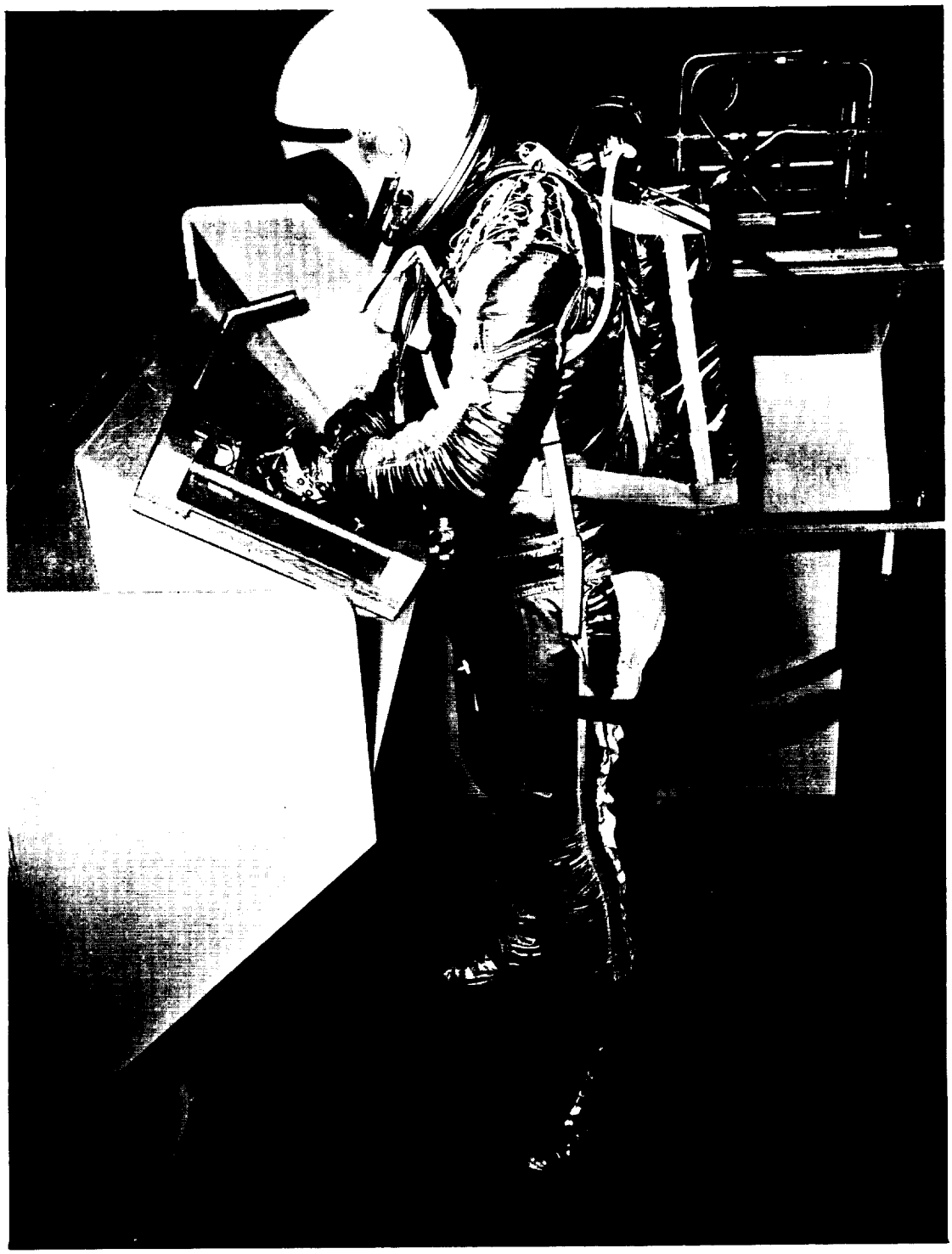
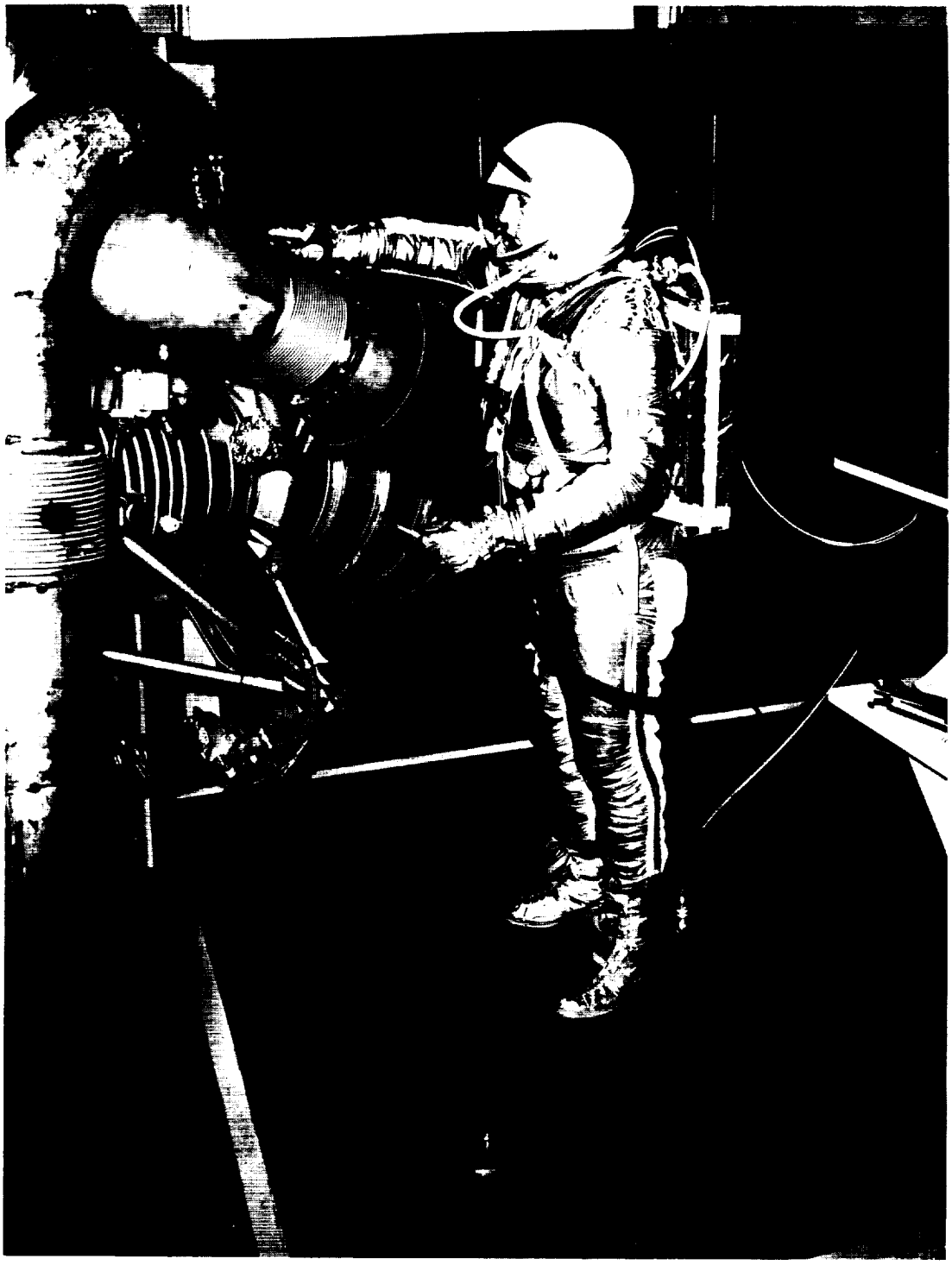


FIGURE 31. SPACE MAINTENANCE RESEARCH STUDY TO DETERMINE MAN'S CAPABILITY TO PERFORM REPAIRS IN SPACE



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STATIC AND DYNAMIC TESTING FACILITIES FOR THE SATURN LAUNCH VEHICLE

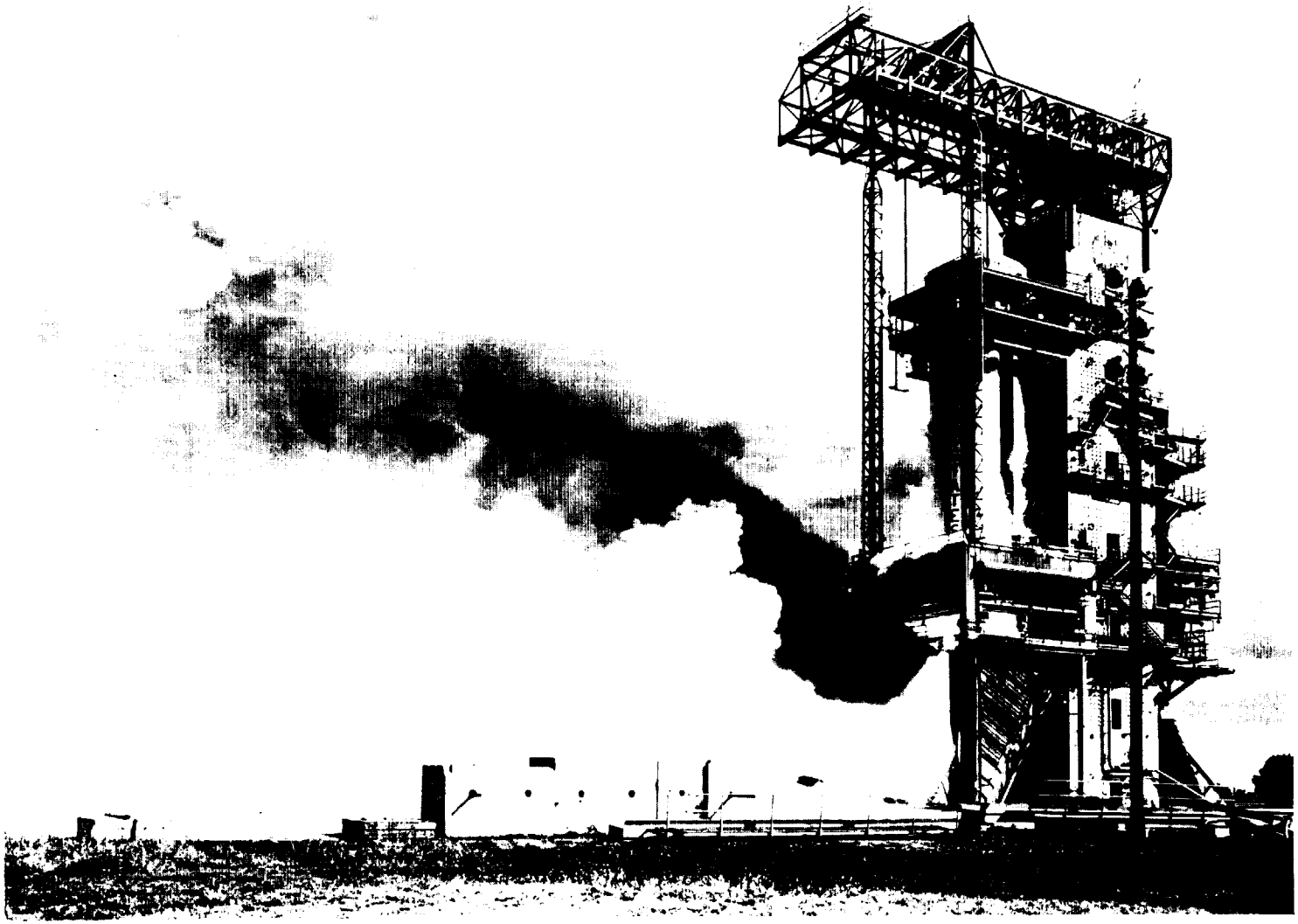


FIGURE 33. SA-1 STATIC FIRING

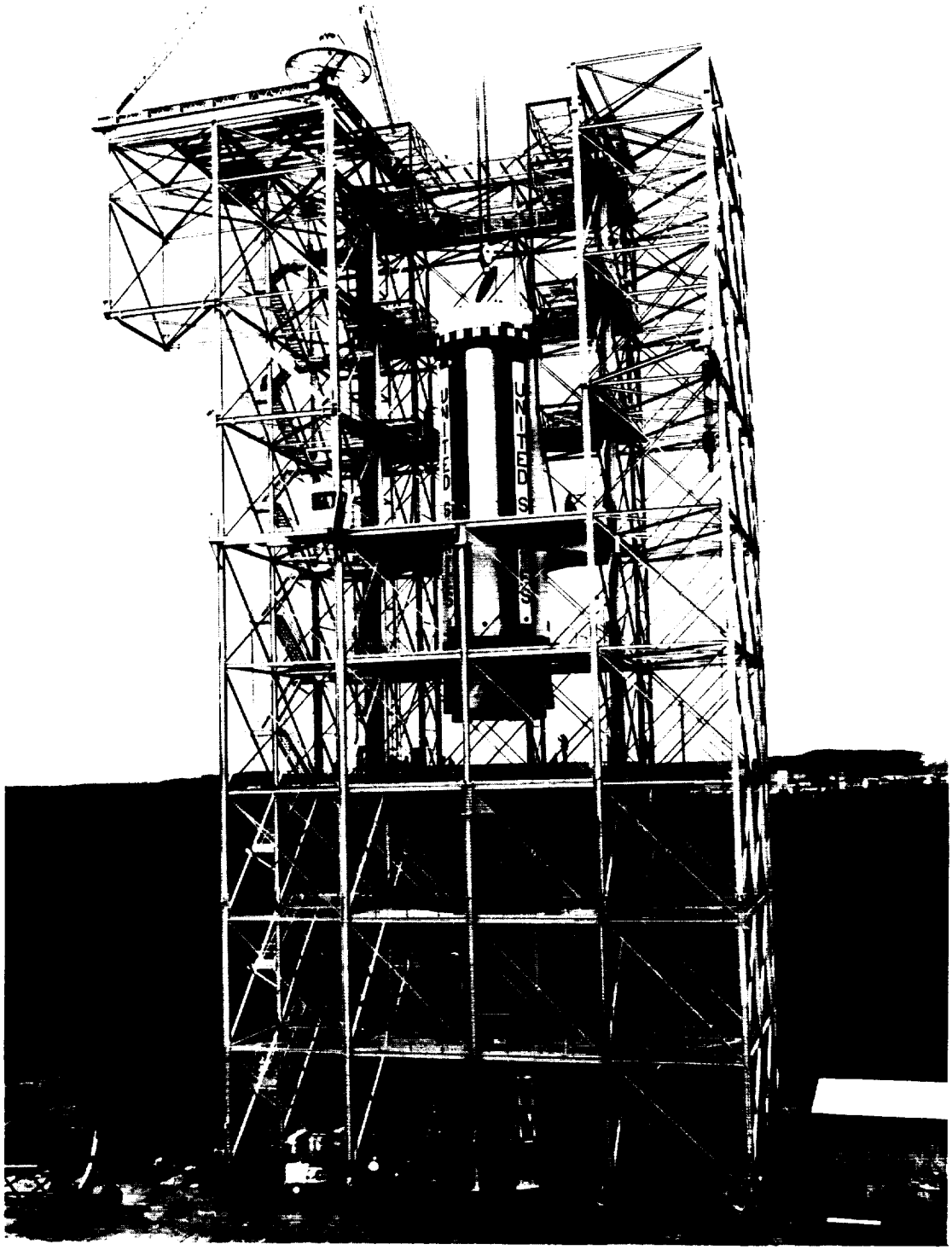


FIGURE 34. S-I STAGE BEING LOWERED INTO DYNAMIC TEST STAND

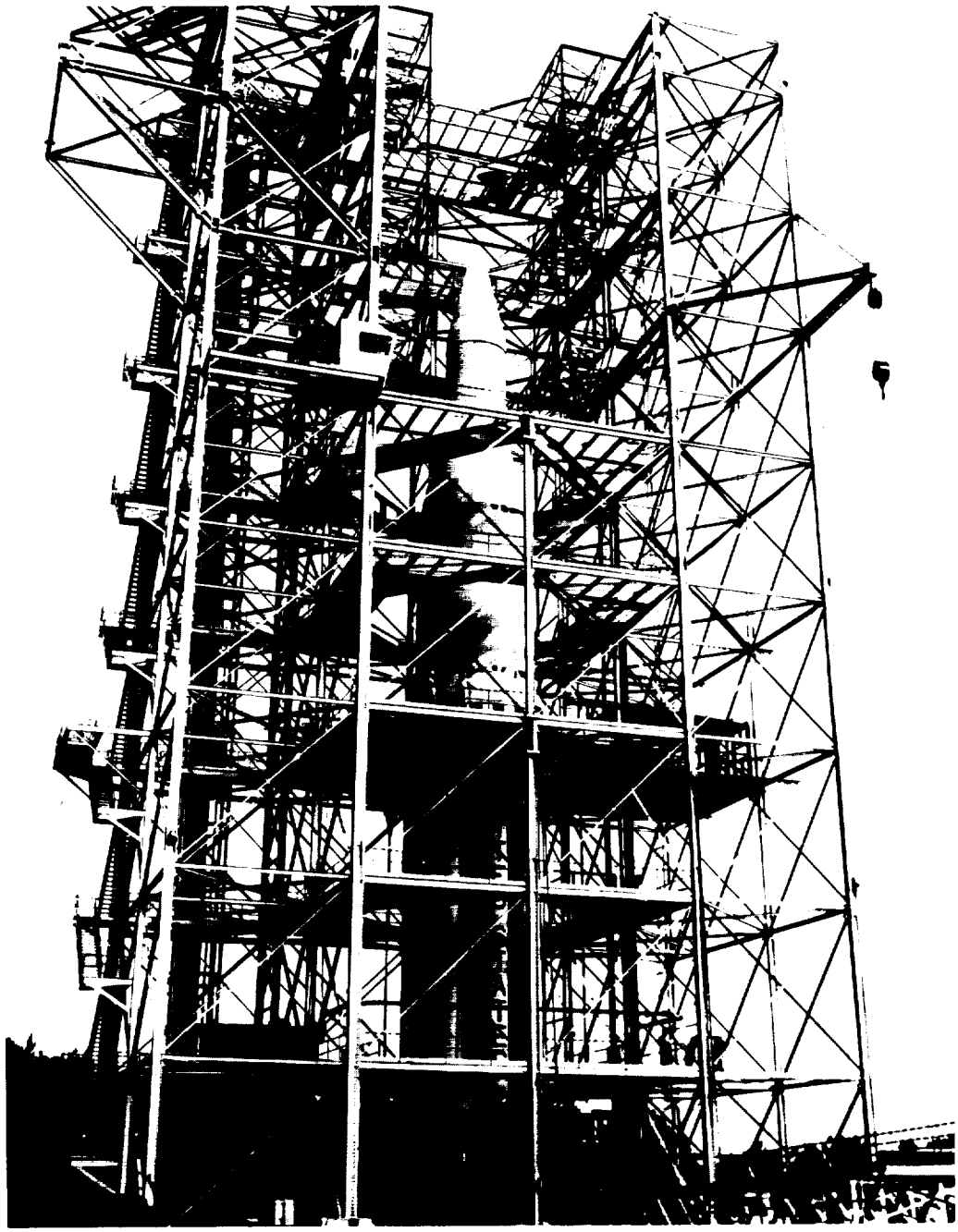


FIGURE 35. COMPLETED VEHICLE IN DYNAMIC TEST STAND

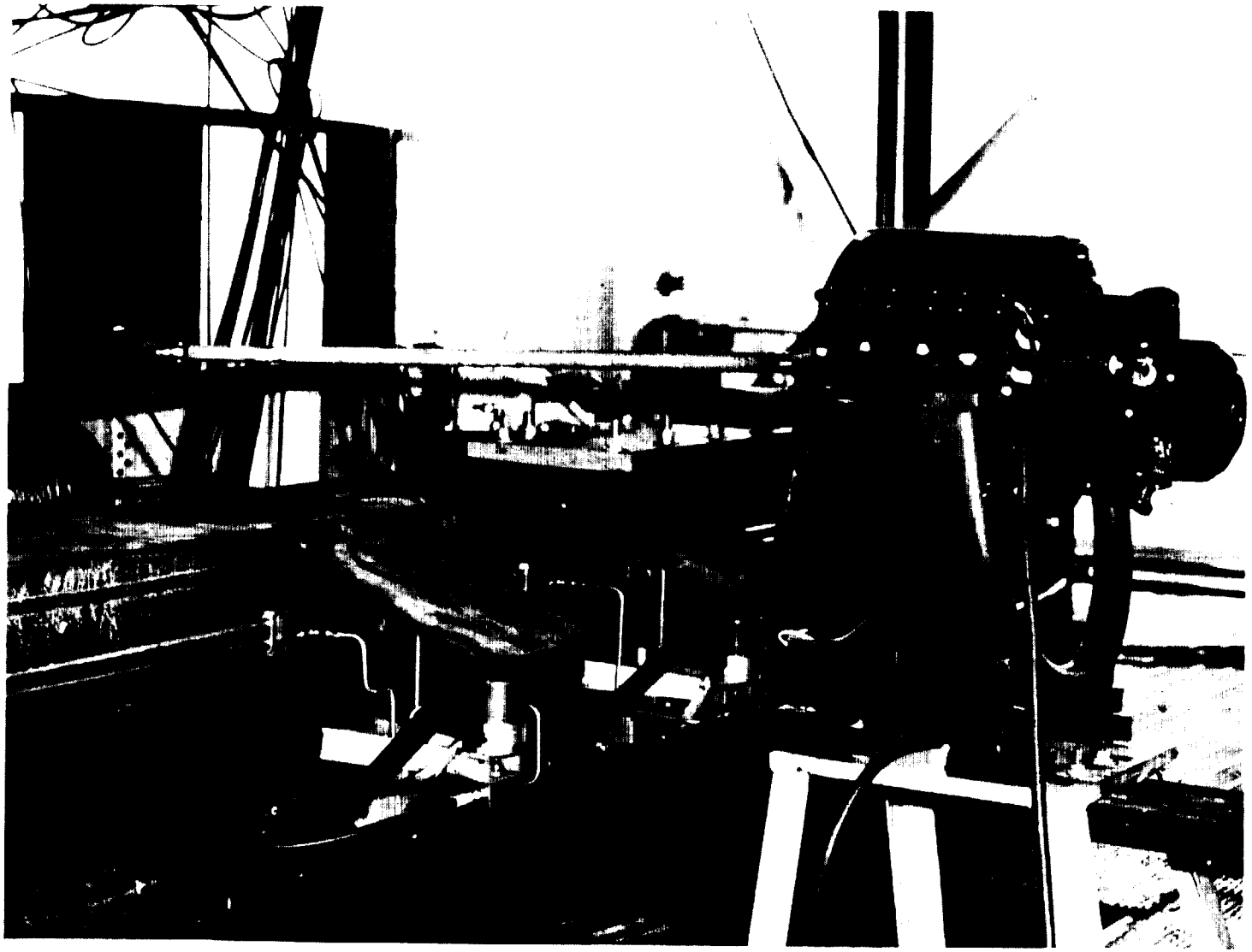
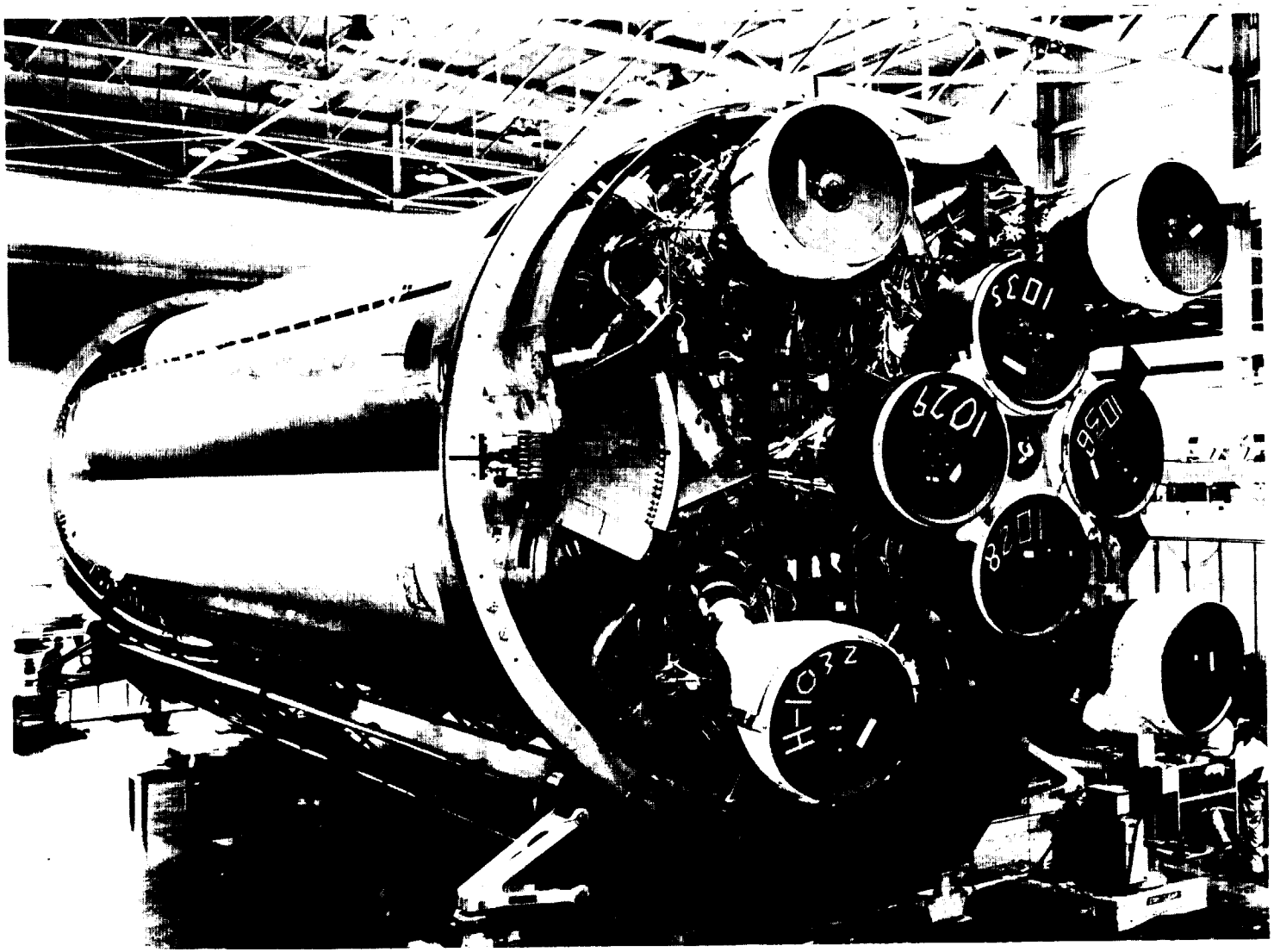


FIGURE 36. SHAKER TEST SET-UP IN DYNAMIC TOWER

SA-2, SA-3, AND SA-4 LAUNCH VEHICLES



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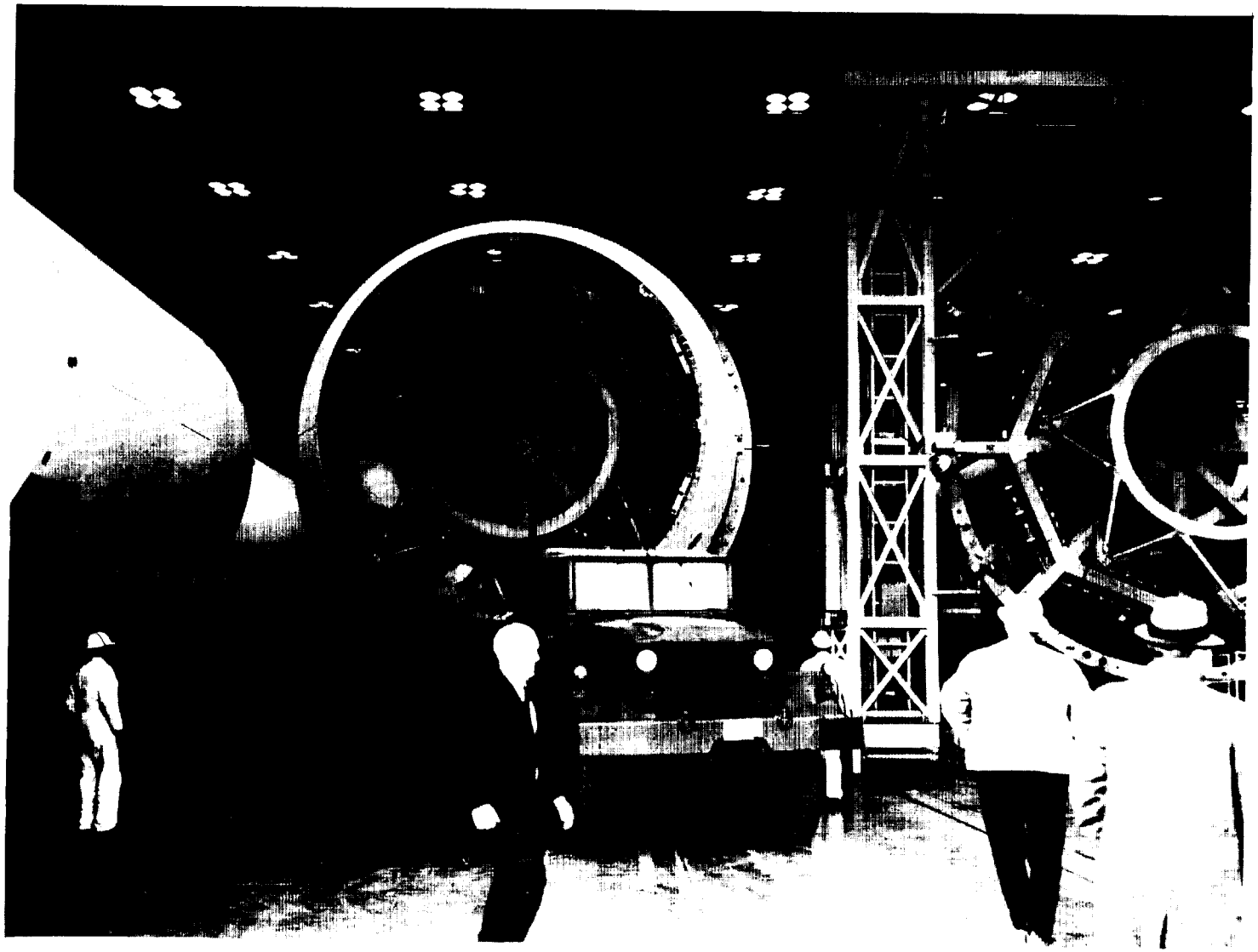

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ENGINE DEVELOPMENT PROGRAM

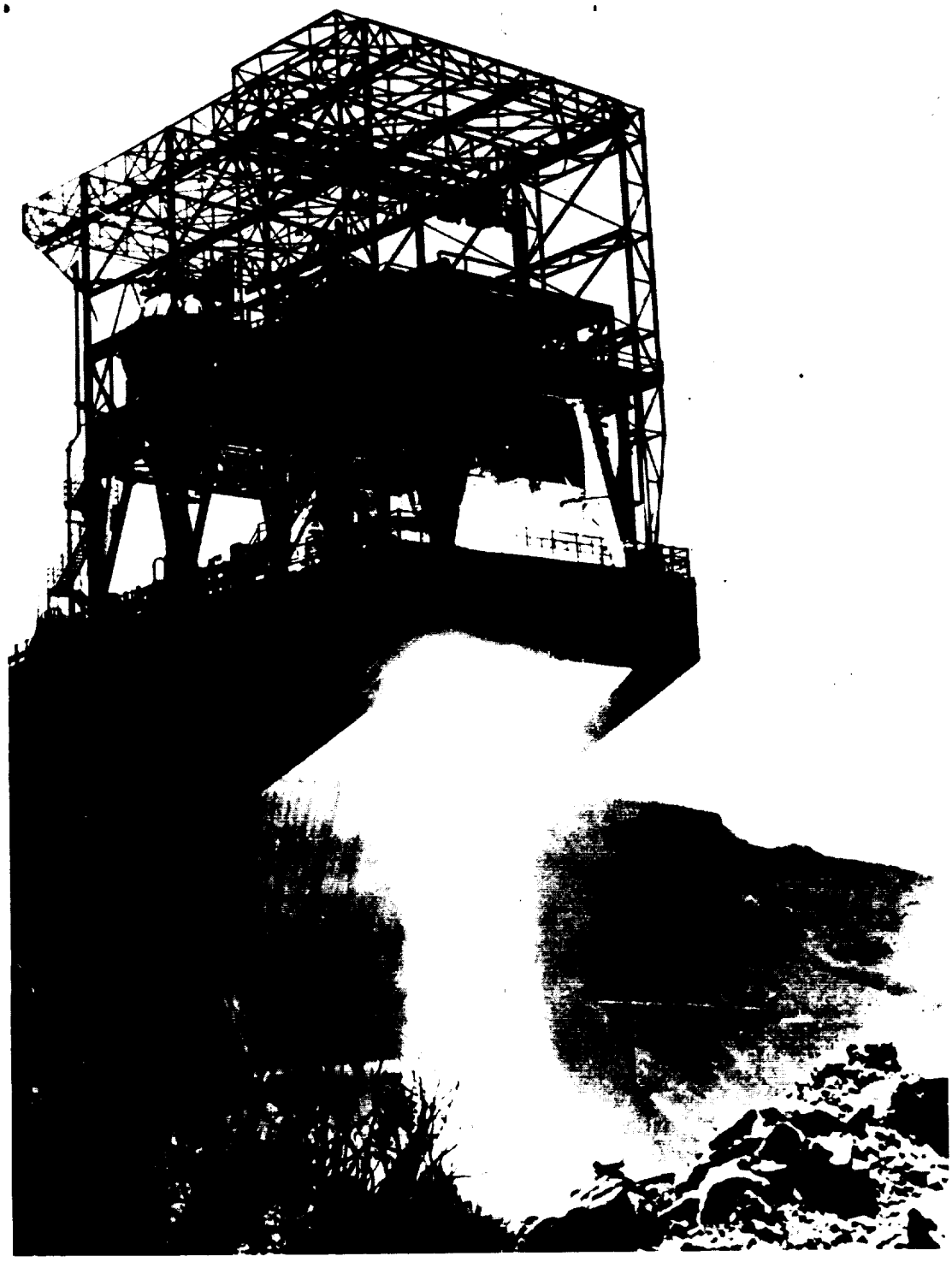

FIGURE 39. 1,500,000 POUND THRUST F-1 ENGINE STATIC FIRING

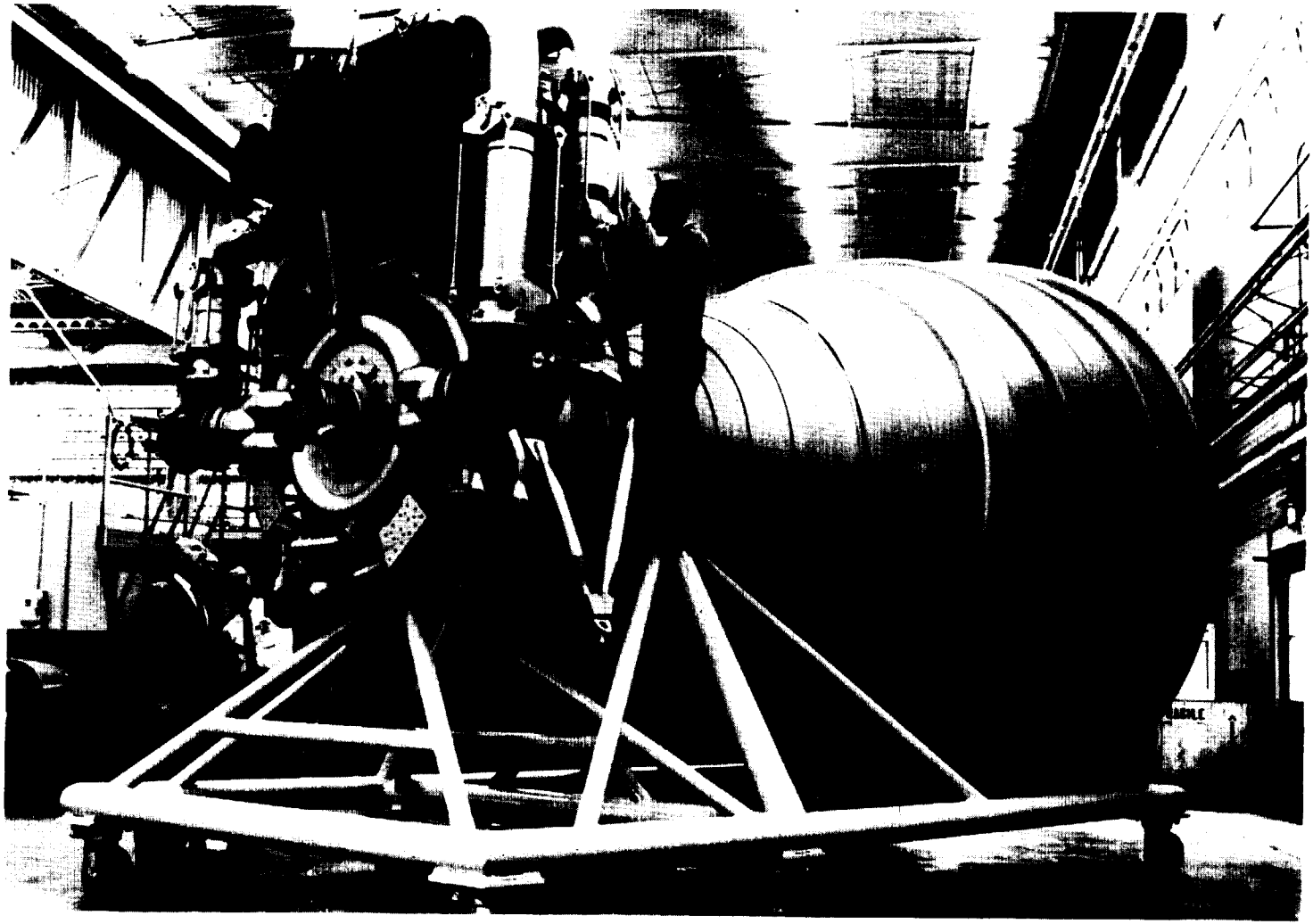

FIGURE 40. F-1 ENGINE MOCK-UP

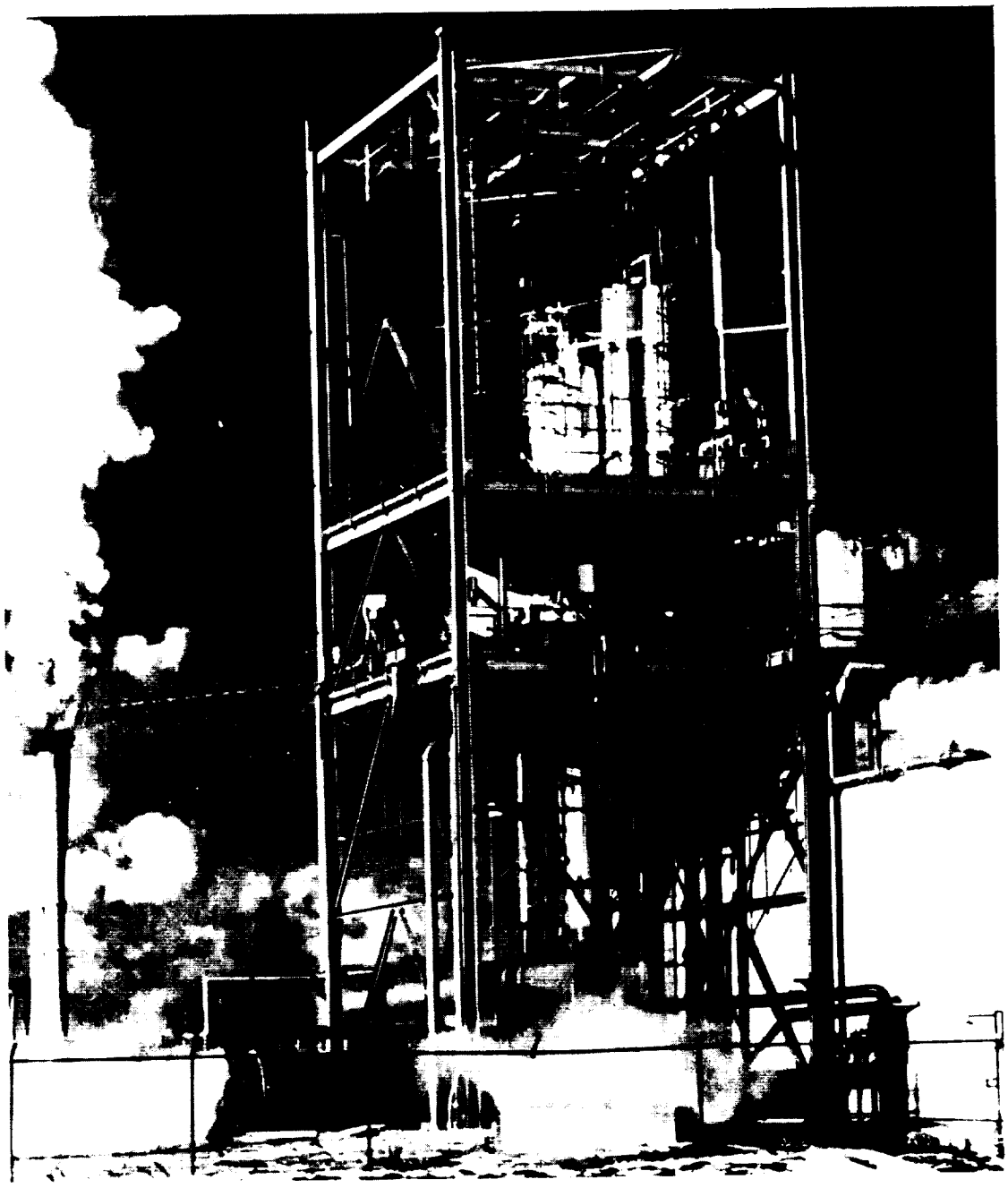

FIGURE 41. STATIC FIRING OF THE RL 10 HYDROGEN ENGINE
(THIS TYPE TO BE USED ON S-IV STAGE)

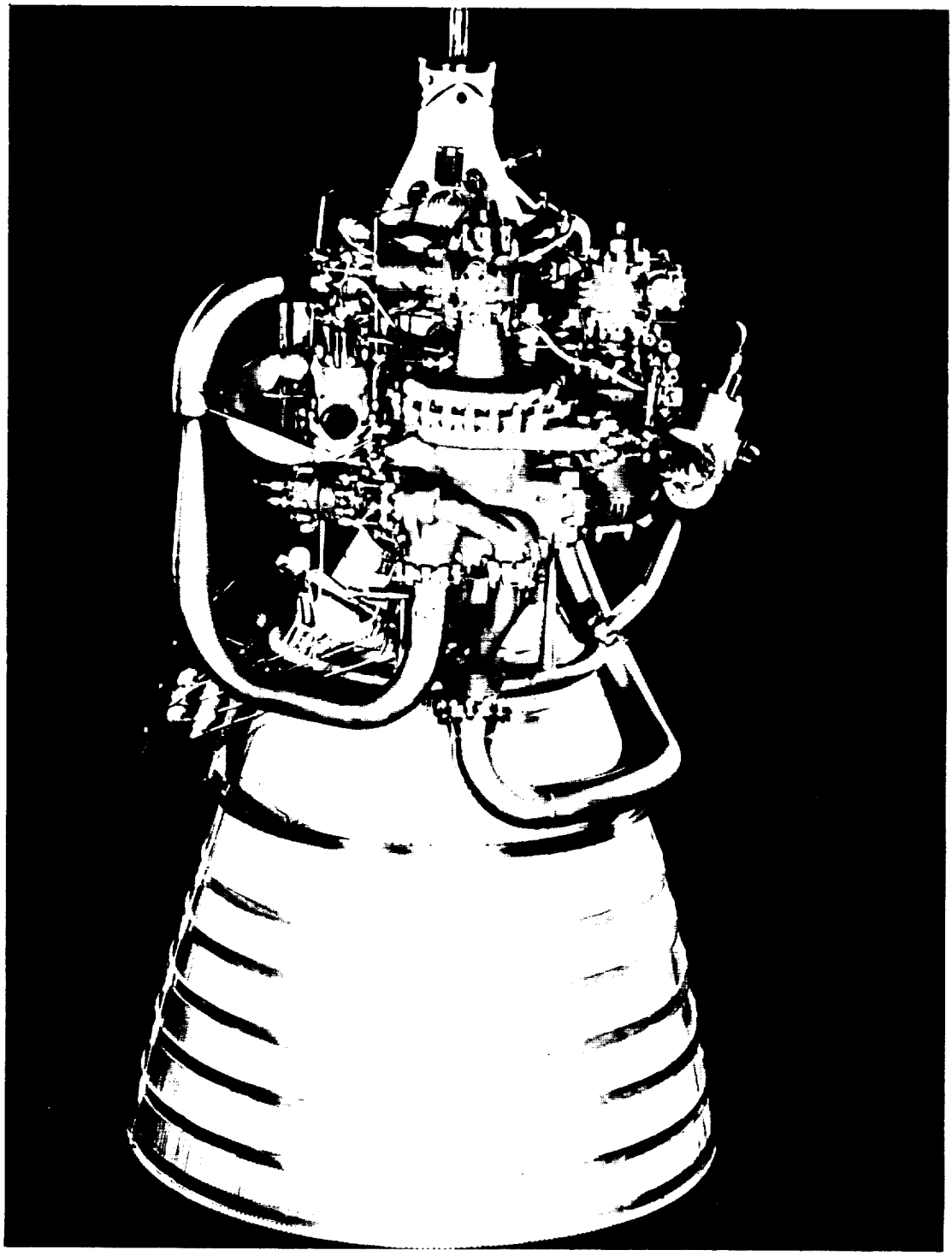

FIGURE 42. MOCK-UP OF RL-10 15,000 POUND THRUST ENGINE

FIGURE 43. SCALE MODEL OF 200,000 POUND THRUST J-2 HYDROGEN ENGINE TO BE USED ON SATURN S-II & S-IV B STAGES

DOUGLAS AIRCRAFT S-IV STAGE FABRICATION AND TEST FACILITIES

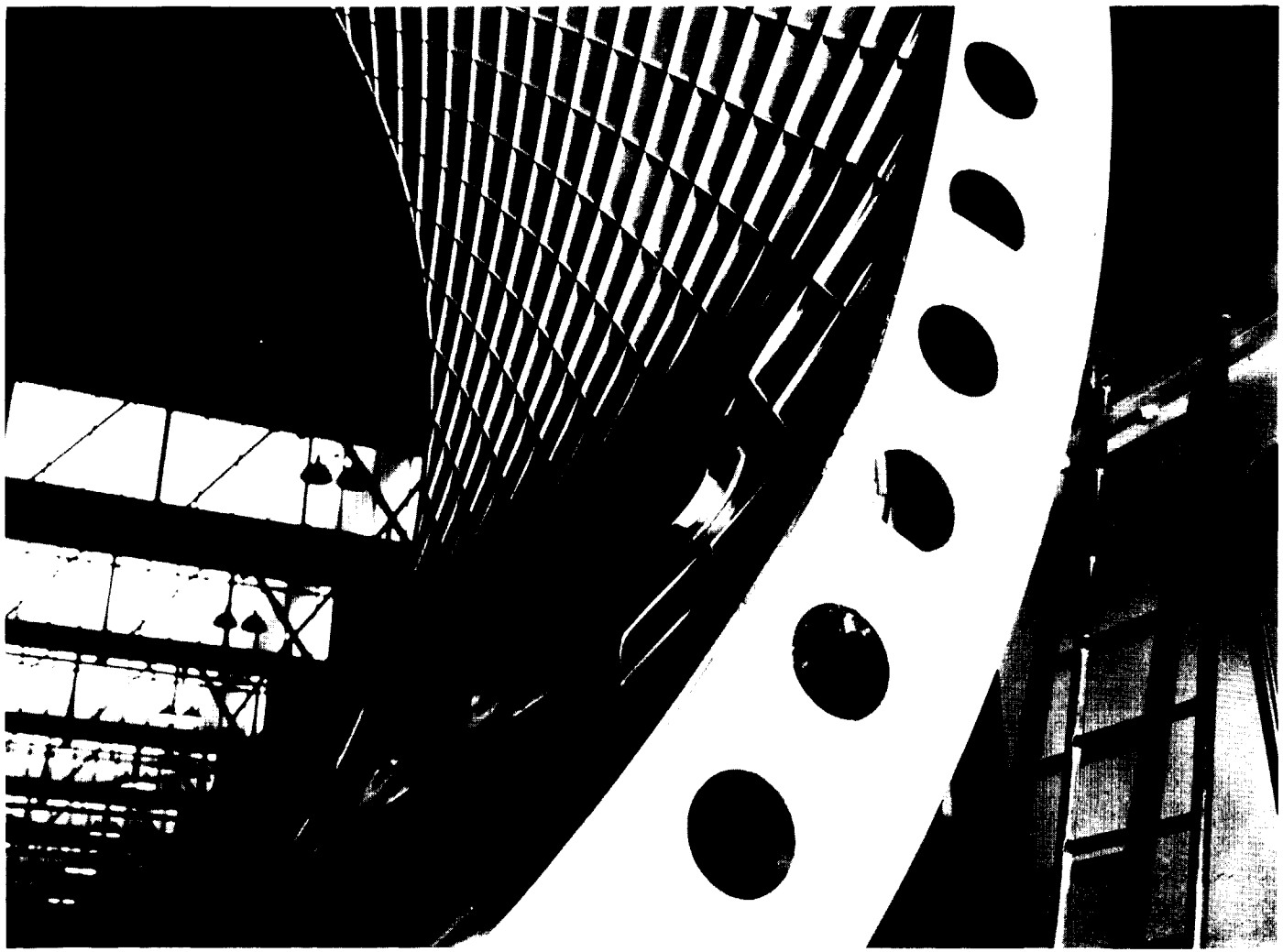

FIGURE 44. LIQUID HYDROGEN TANK SHOWING
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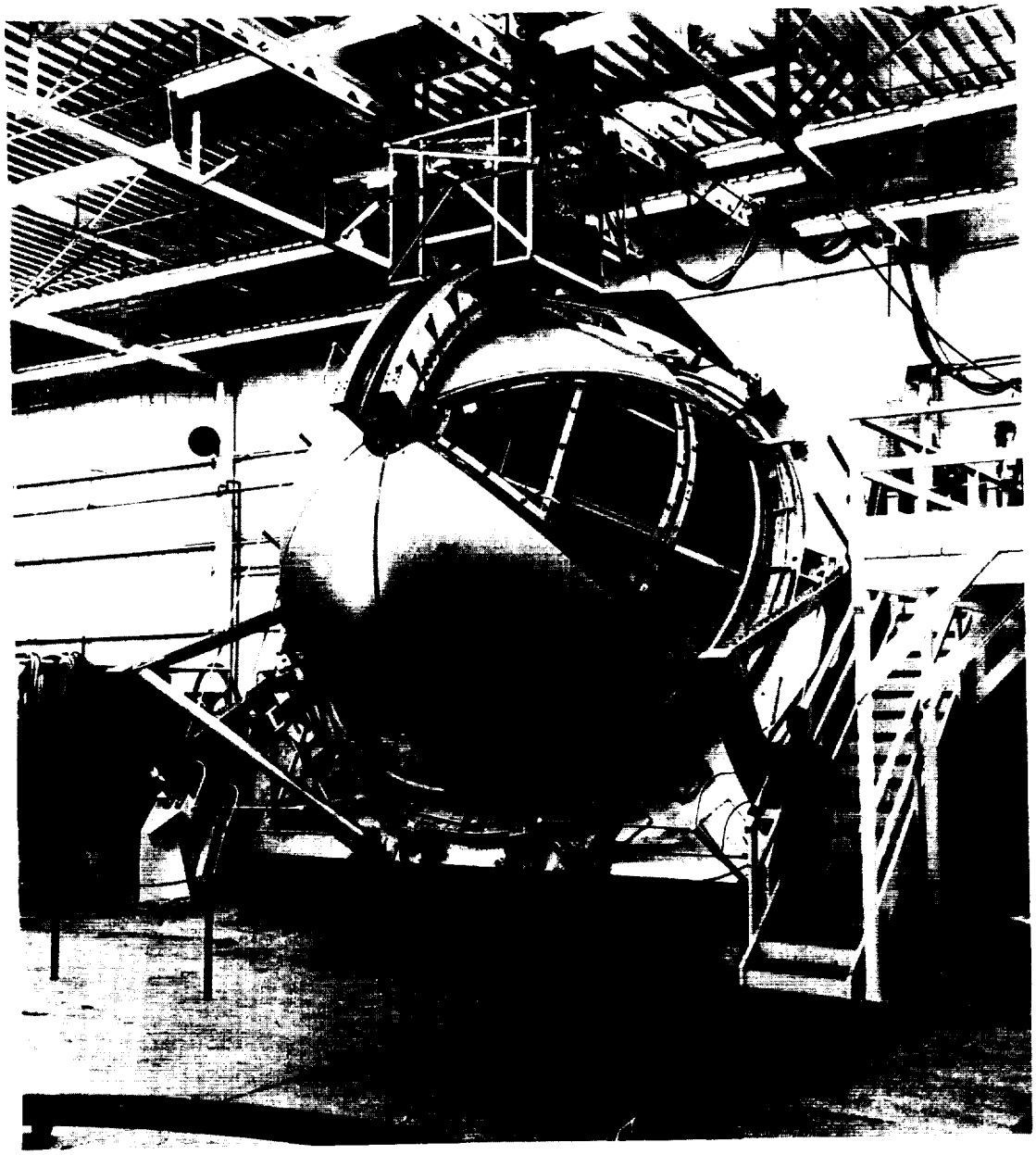

FIGURE 45. WELDING S-IV COMMON DOME

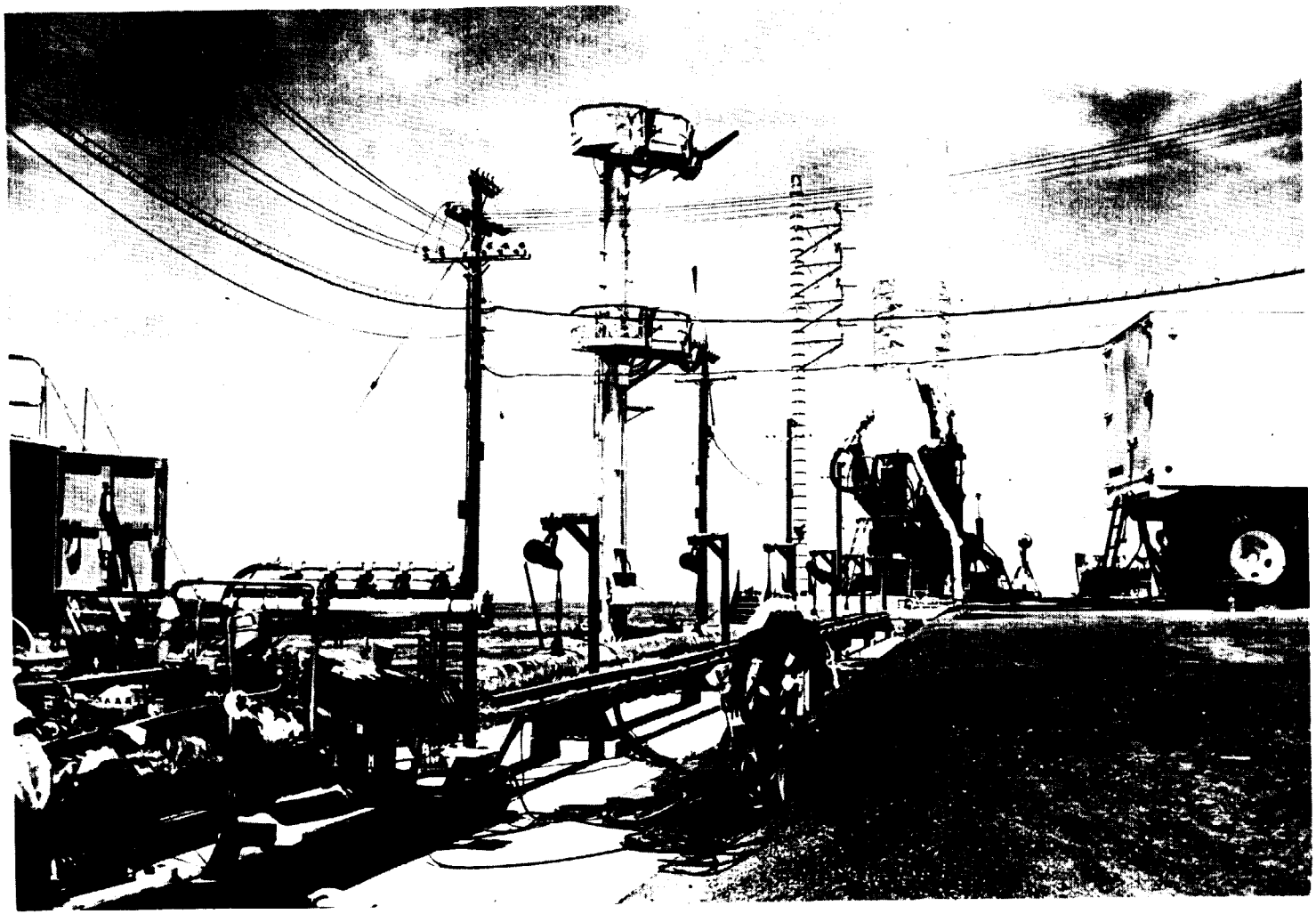

FIGURE 46. LIQUID HYDROGEN TEST FACILITY AT SACTO

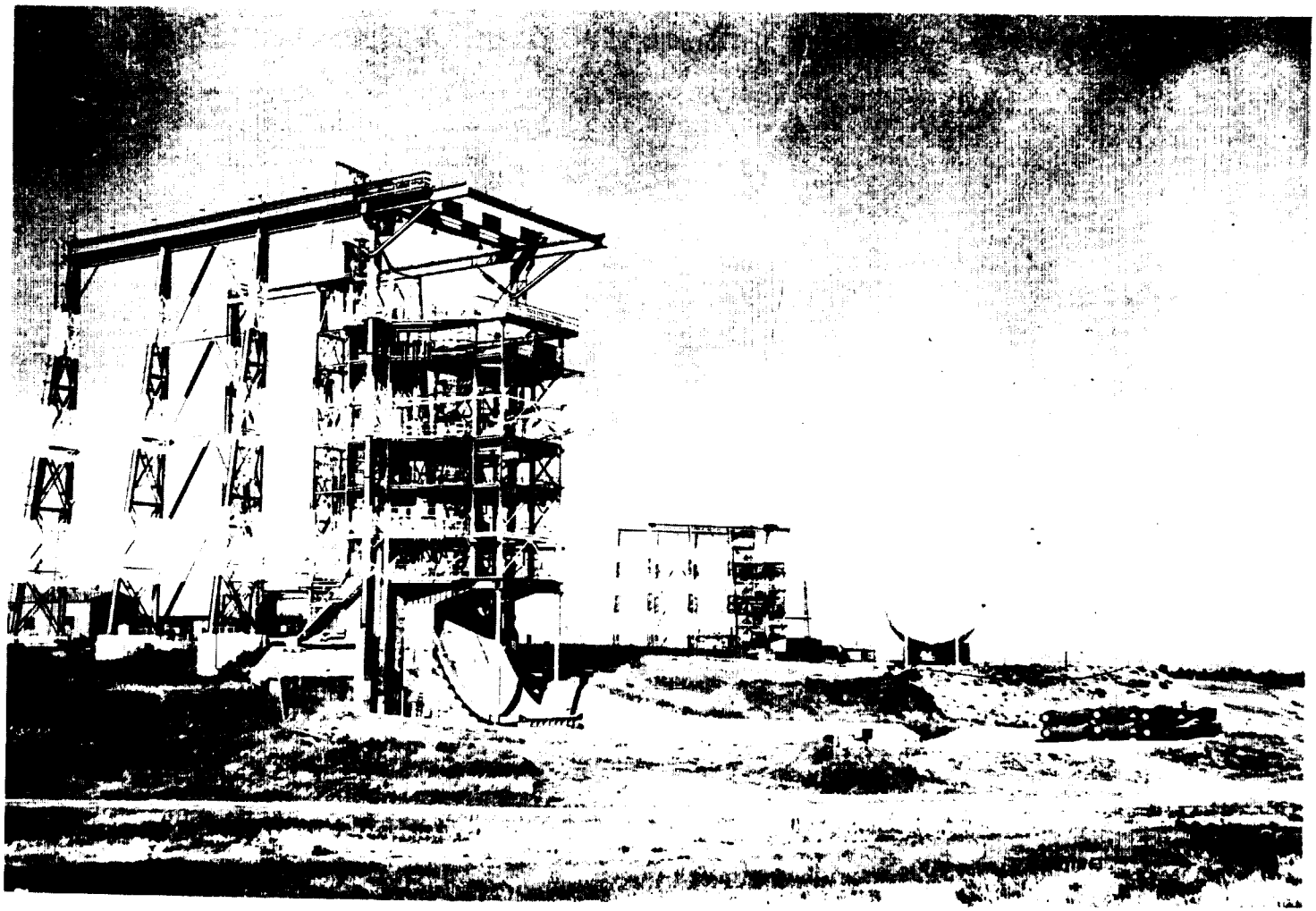

FIGURE 47. SACTO S-IV TEST STANDS

MSFC MICHOUD FACILITY

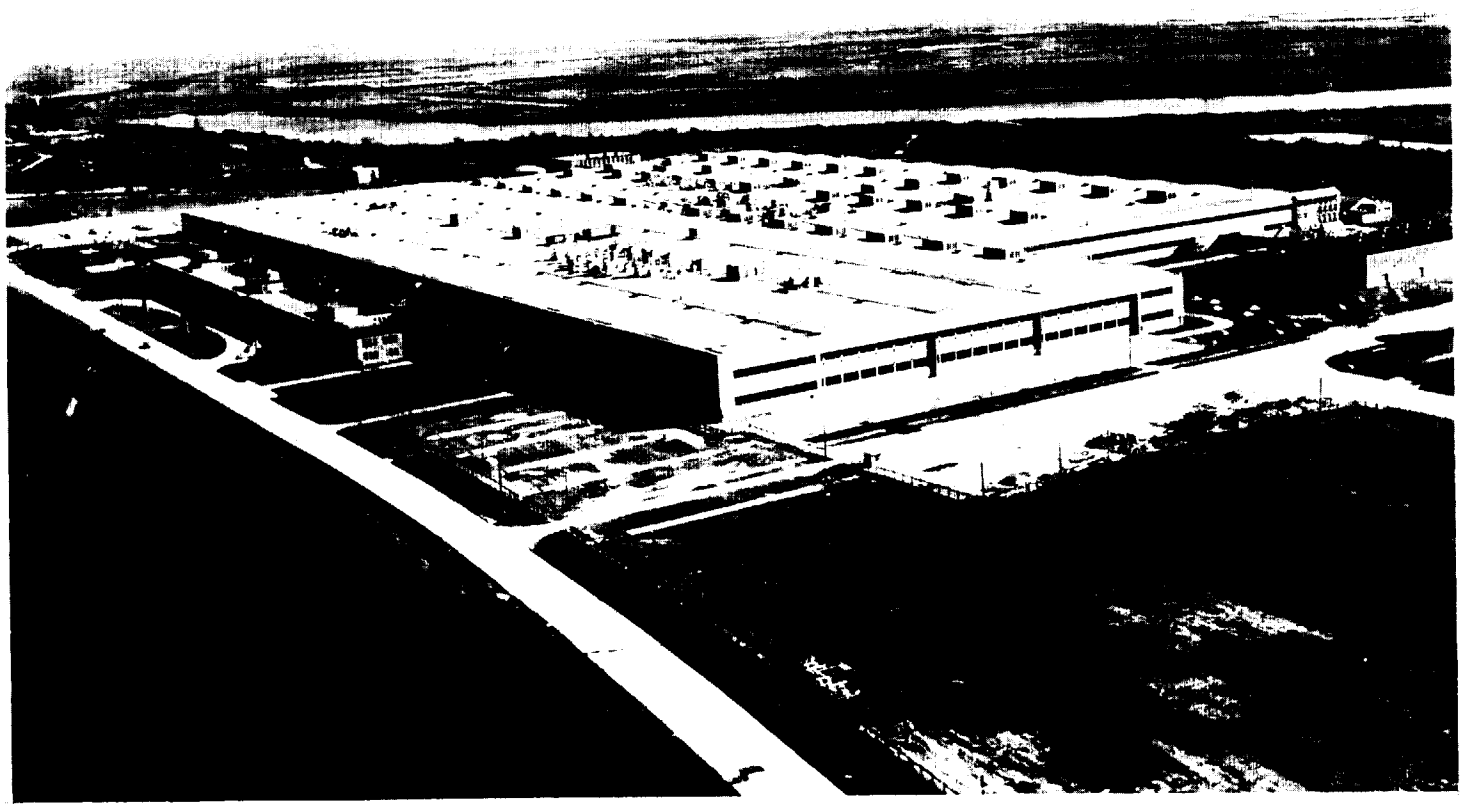

FIGURE 48. AERIAL VIEW FROM THE NORTHEAST

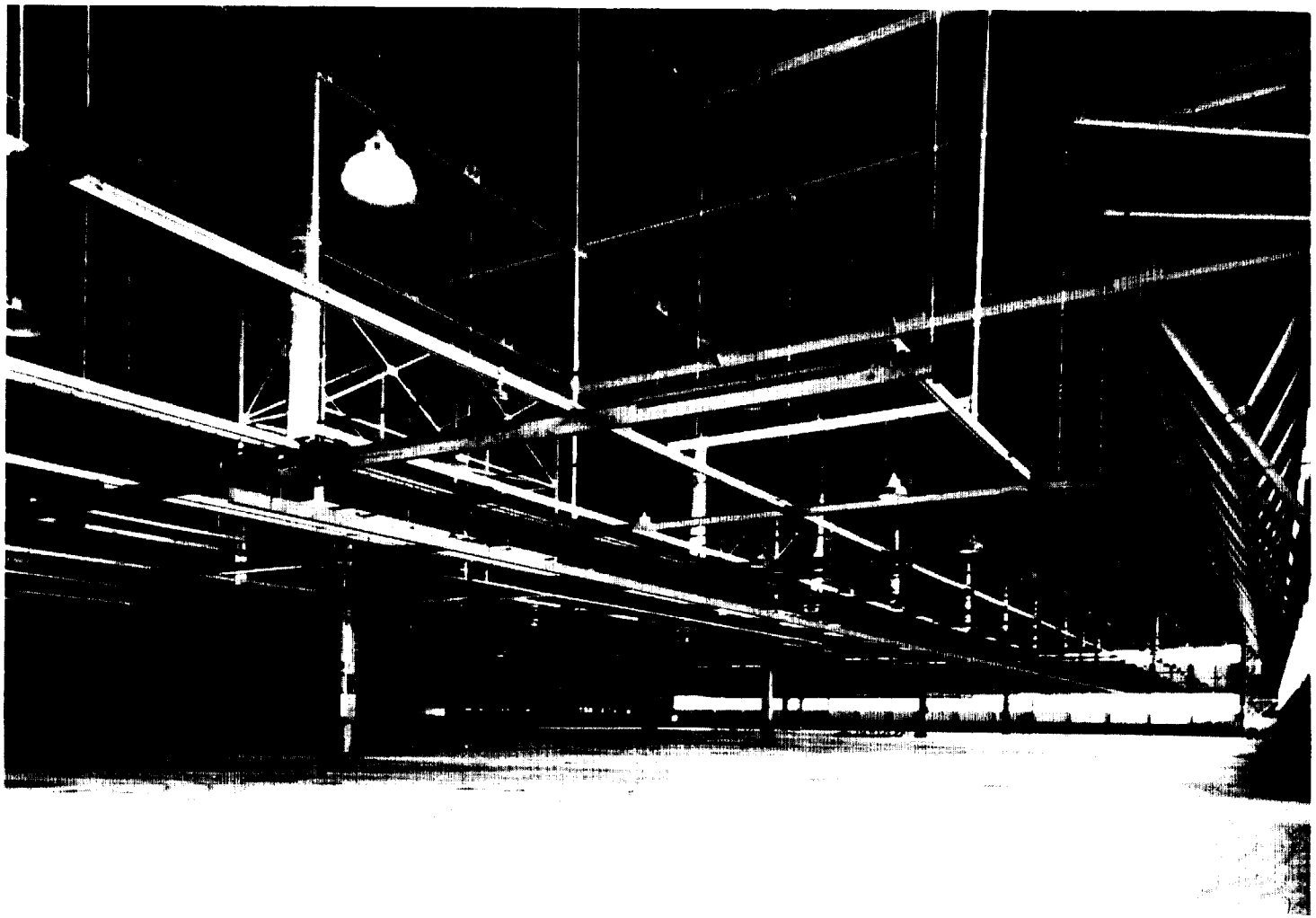

FIGURE 49. LOOKING SOUTHWEST FROM THE NORTHEAST CORNER OF THE MANUFACTURING BUILDING, 40' X 125' DOORS ON RIGHT

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APPROVAL

PICTORIAL PROGRESS REPORT
OF
THE SATURN LAUNCH VEHICLE DEVELOPMENT

Volume IV

The information in this report has been reviewed for security classification. Review of any information concerning Department of Defense or Atomic Energy Commission programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

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